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RCA F26050WNFE1 TECHNICAL SERVICE DATA

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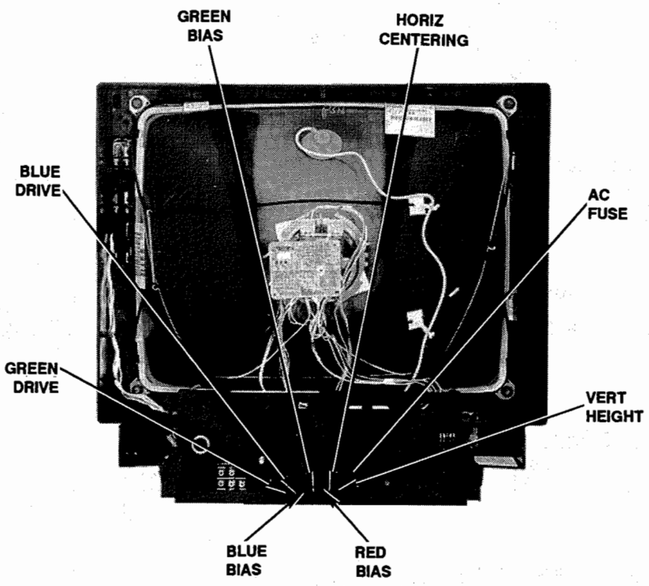

TEST JIG HOOKUP

Chek-A-Color Function	Adapter No.	PC Board Plug	Pin	Color
CRT	B239	# H	1	Red
Yoke	D4124		2	Blue
Yoke Setting	YP1	# V	1	Green
Comments	Focus Tap		2	Yellow

The listing of any available replacement part herein in no case constitutes a recommendation, warranty, or guarantee by Howard W. Sams & Company as to the quality and suitability of such replacement part. The numbers of the listed parts have been compiled from information furnished to Howard W. Sams & Company by the manufacturers of the specific type of replacement part listed.

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PHOTOFACT® Technical Service Data

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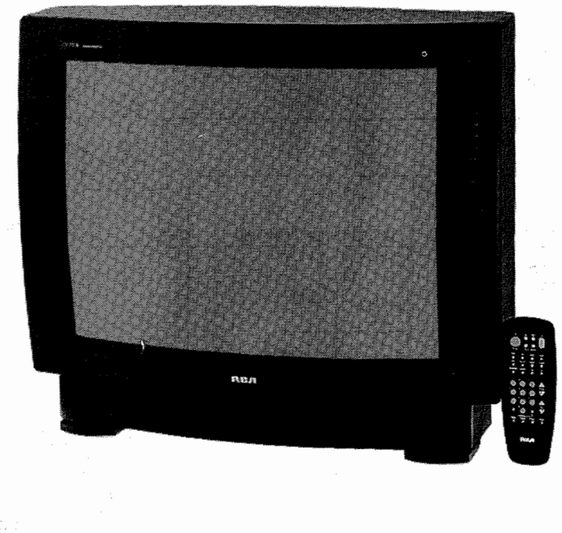
For Supplier Address, See PHOTOFACT Annual Index

RCA

Model F26050WNFE1 (Chassis CTC167CN)



Complete coverage for servicing a television receiver...

- **Schematics**
- **Parts lists**
- **Component locations**
- **Troubleshooting guide**

Coverage includes these additional models and chassis:

MODEL	CHASSIS
F25163WNFC1/NC1	CTC167C
F26051EMFE1/NE1	CTC167CN
G25180WKMF1	CTC167CS
G25181WKMF1	CTC167CS
G25189TKKF1/MF1	CTC167CS
G26290TNMF1/PF1	CTC167CS
G26291WKKF1/MF1/MF2	CTC167CS
G26295PHMF1	CTC167CS
G26299TKKF1/MF1	CTC167CS
G27201WKLM1/KM2	CTC167R

HOWARD W. SAMS & COMPANY

APRIL 1992 SET 2971

2971

SAFETY PRECAUTIONS

SERVICE WARNING

ONLY qualified service technicians who are familiar with safety checks and guidelines should perform service work. For continued SAFETY:

1. Before replacing parts, disconnect power source to protect electrostatically sensitive parts.
2. Do not attempt to modify any circuit unless so recommended by the manufacturer.
3. When servicing chassis, use an isolation transformer between the line cord and power receptacle.

SERVICING HIGH VOLTAGE AND PICTURE TUBE

Use EXTREME CAUTION when servicing the High Voltage circuits.

1. To discharge static High Voltage, connect a 10-kilohm resistor in series with a test lead between chassis and picture tube anode lead.
2. DO NOT lift picture tube by the neck.
3. ALWAYS wear shatterproof goggles when handling picture tube to protect eyes in case of implosion.

X-RAY RADIATION AND HIGH VOLTAGE LIMITS

Be aware of the instructions and procedures covering x-ray radiation. In solid-state receivers and monitors, the picture tube is the only potential source of x-rays.

1. Keep an accurate High Voltage meter available at all times. Check meter calibration periodically.
2. Whenever servicing a chassis, check High Voltage at various brightness levels to be sure it is regulating properly.
3. Keep High Voltage at rated value, NO HIGHER. Excessive High Voltage may cause x-ray radiation or failure of associated components. DO NOT depend on protection circuits to keep voltage at rated value.
4. When troubleshooting a set with excessive High Voltage, avoid close contact with picture tube. DO NOT operate set longer than necessary. To locate the cause of excessive High Voltage, use a variable AC transformer to regulate voltage.
5. In present chassis, many electrical and mechanical components have safety-related characteristics which are not detectable by visual inspection. Such components are identified by a # on both the schematic and the parts list. For SAFETY, use only equivalent replacement parts when replacing these components.

SAFETY CHECKS -- FIRE AND SHOCK HAZARD

Cold Leakage Checks for Sets with Isolated Ground

1. Unplug the AC cord, connect a jumper across the plug prongs, and turn the power switch ON.
2. Use an ohmmeter to measure the resistance between the jumpered AC plug and any exposed metal cabinet parts such as antenna screw heads, control shafts, or handle brackets. Exposed metal parts with a return path should measure between 200 kilohms and 5 megohms. Parts without a return path must register infinity.

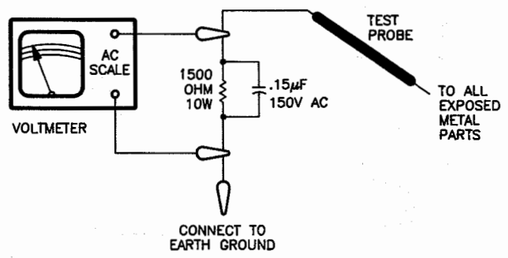
Hot Leakage Current Check

1. Plug the AC cord directly into AC outlet. DO NOT use an isolation transformer.
2. Use a 1500-ohm, 10-watt resistor in parallel with a .15-microfarad 150-volt AC capacitor to connect between any exposed metal parts on the set and a good earth ground. (See figure below.)
3. Use an AC voltmeter with at least 1000 ohms-per-volt sensitivity to measure the voltage across the resistor. Check all exposed metal parts and measure voltage at each point.
4. Voltage readings should not exceed .75 volts RMS (5 milliamps AC). Any value exceeding this limit constitutes a potential shock hazard and must be corrected.
5. If AC plug is not polarized, reverse the AC plug and repeat exposed metal part voltage measurement at each point.

GENERAL GUIDELINES

Perform a final SAFETY CHECK before returning set to customer.

1. Check repaired area for poorly soldered or de-soldered connections, and check entire circuit board for solder splashes.
2. Check inner board wiring for pinched wires or wires contacting any high-wattage resistors.
3. Check that all control knobs, shields, covers, grounds and mounting hardware have been replaced. Be sure to replace all insulators and restore proper lead dress.



TROUBLESHOOTING

POWER SUPPLY

Check the AC Fuse (F4001). If F4001 is open:

> Check Diodes CR4001 thru CR4004, Capacitors C4001 thru C4005, Electrolytic Capacitor C4007, Standby Power Transformer (T4601), Diodes CR4601 thru CR4604, Capacitors C4601 thru C4604 and Electrolytic Capacitor C4605.

Apply 120VAC and check for 150V* at the cathode of Diode D4002. If this voltage is missing:

> Check the voltages and components associated with the Line Filter (L4001) and Resistor R4001.

If 150V* is present at the cathode of D4002, check for 129V* at TP4008. If this voltage is missing:

> Check the voltages and components associated with SCR4101, Sawtooth Generator Transistor (Q4103), Error Amp Transistor (Q4104), Osc Transistors (Q4101, Q4102) and the Horizontal Output Transistor (Q4401).

If the proper voltage is present at TP4008:

> Refer to the "Horizontal" section of this troubleshooting guide.

* With respect to common tie point.

AUDIO

Select an active TV channel and check for an audio waveform at pin 34 of the IF/Luma/Chroma/Deflection Processor IC (U1001). If there is no audio:

> Check the voltages, waveforms and components associated with pins 28 thru 41 of U1001.

If audio is present at pin 34 of U1001, select a station that is transmitting a signal in stereo, select the stereo mode, check for audio waveforms at pin 4 and 5 of the Stereo Decoder IC (U1701) and check the voltages, waveforms and components associated with the Summer Transistors (Q1703, Q1704), pins 31, 34, 36, 38, 39 of U1001, pins 3 and 13 of U1701, pins 8 thru 14 of U1702.

Select the Mono mode and check for 5.2V at pin 6 of U1701. If this voltage is missing:

> Check the voltages, waveforms and components associated with U1701.

Check for audio waveforms at pins 1 and 13 of the Sound Output IC (U1900). If these waveforms are missing:

> Check the voltages, waveforms and components associated with the Audio Switch IC (U1402) and U1900. Check the voltage at pin 8 of Volume Control IC (U1801), it should measure 0.7V at mute and 5.6V at Maximum volume.

VIDEO

Inject a video signal at Video Buffer Transistor (Q2305) and check for video on the CRT. If video is missing:

> Refer to the "IF-AGC" section of this Troubleshooting guide.

If there is video on the CRT, check for a video waveform at pin 53 of IF/Luma/Chroma/Deflection Processor IC (U1001). If video is missing:

> Check the voltages, waveforms and components associated with Video Switch IC (U1401) and Video Amp Transistors (Q1402, Q1403).

If video is present at pin 53 of U1001, check for a video waveform at pin 13 of U1001. If the waveform is missing:

> Check the voltages, waveforms and components associated with pins 8, 14, 15, 17, 51, 52 and 53 of U1001.

If the waveform is present at pin 13:

> Check the voltages, waveforms and components associated with the Luminance Buffer Transistor (Q2901) and the OSD Black Inverter Transistor (Q2706).

If the brightness is inadequate or cannot be controlled:

> Check the voltages, waveforms and components associated with pins 3, 5 and 7 of U1001 and pin 10 on the CRT.

IF-AGC

Inject an IF signal at the IF input (TP2303) and check for video on the CRT. If video is present:

> Check the Tuner, Tuner control circuits and Tuner AFT circuits.

If there is no video on the CRT, check for a video waveform at Video Buffer Transistor (Q2305). If video is present at Q2305:

> Refer to the "Video" section of this Troubleshooting guide.

If video is missing at Q2305, apply AGC bias to pin 22 of the IF/Luma/Chroma/Deflection Processor IC (U1001). If video is now present at Q2305:

> Check the voltages, waveforms and components associated with pins 18, 22 and 46 of U1001.

If there is still no video at Q2305:

> Check the voltages, waveforms and components associated with pins 19 thru 27 and 42 thru 47 of U1001, IF Preamp Transistor (Q2301) and Video Buffer Transistor (Q2302, Q3205).

A defective AGC circuit can cause an overloaded picture, excessive snow or loss of audio and video. See the AGC Voltage Chart for AGC voltages with signal.

AGC VOLTAGE CHART

U1001

Pin 18	2.0V
Pin 22	5.3V
Pin 46	3.9V

TROUBLESHOOTING continued

CHROMA

Check for a chroma waveform at pin 49 of the IF/Luma/Chroma/Deflection Processor IC (U1001). If the waveform is missing:

Check the voltages, waveforms and components associated with pin 49 of U1001.

If a chroma waveform is present at pin 49 of U1001, check for the proper waveforms at pins 9, 10 and 11 of U1001. If these waveforms are missing:

Check the voltages, waveforms and components associated with pins 2 thru 7, 9 thru 12, 48 and 49 of U1001. Check the 3.58MHz Oscillator at pins 4 and 6 of U1001. Check the voltages and components associated with the Color control and pin 3 of U1001.

If there is inadequate tint range:

Check the voltages, waveforms and components associated with the Tint control and pin 2 of U1001.

If the proper chroma waveforms are present at pins 9, 10 and 11 of U1001:

Refer to the "Raster" section of this Troubleshooting guide.

HORIZONTAL

Determine if the TV is shutdown, refer to the "High Voltage Shutdown" section of this troubleshooting guide.

If the TV is not in shutdown, inject a horizontal drive signal at the base of the Horizontal Output Transistor (Q4401). If horizontal deflection is now present:

Check the voltages, waveforms and components associated with pins 57 thru 63 of the IF/Luma/Chroma/Deflection Processor IC (U1001) and the Horizontal Driver Transistor (Q4301) and Buffer Transistor (Q4302).

If there is still no horizontal deflection:

Check the voltages, waveforms and components associated with Q4401 and the Horizontal Output Transformer (T4401). Check the voltages and components associated with Diodes CR4702, CR4703, CR4704 and CR4705 for defects.

The High Voltage Rectifier is part of Transformer T4401 and if defective will affect the performance of the horizontal circuits. If the Horizontal Oscillator is off frequency:

Check the voltages and components associated with pins 60, 61 and 62 of U1001. Horizontal linearity or foldover problems may be caused by Capacitors C4402, C4403, C4405 and C4406 being defective.

HIGH VOLTAGE SHUTDOWN

The High Voltage is monitored by Diode CR4901, rectifying pulses from the Horizontal Output Transformer (T4401). Should the High Voltage increase, the rectified voltage at the cathode of Diode CR4901 will also increase and trigger the Zener Diode CR4902 into conduction which shuts down the set. After 2 seconds the set will reset and turn on again. If the fault is still present, the High Voltage will increase until shutdown again occurs. This process will continue until the fault is removed or the set is turned off.

To troubleshoot:

Remove CR4901 from the circuit and use a variac for AC power. Start at 90VAC and increase as necessary to locate and repair the defect. Return CR4901 to the circuit.

NOTE: Care should be taken in defeating the High Voltage shutdown circuit, as this may cause excessive X-radiation and damage to the CRT, Transformer T4401 and the associated components. Monitor the High Voltage and troubleshoot.

HIGH VOLTAGE SHUTDOWN TEST

Apply 120VAC to set, turn set on and adjust for normal operation and momentarily short XRP-1 and XRP-2. The set should lose raster and sound for about 2 seconds then the set should resume normal operation. If the set does not lose raster and sound, the shutdown circuit should be repaired. To resume normal operation, remove AC power, wait for 2 seconds, then turn set on.

VERTICAL

Inject a vertical drive signal at pin 55 of the IF/Luma/Chroma/Deflection Processor IC (U1001). If vertical deflection is now present:

Check the voltages, waveforms and components associated with pin 55 of U1001.

If there is still no vertical deflection:

Check the voltages, waveforms and components associated with the Vertical Reset Transistor (Q4503), Vertical Sawtooth Transistor (Q4501), Error Amp Transistor (Q4502) and the Vertical Output IC (U4501). Vertical linearity or foldover problems may be caused by vertical feedback and bias circuits, check Electrolytic Capacitors C4502, C4503 and C4505 for defects.

SYNC

If there is no vertical or horizontal sync:

Check the voltages, waveforms and components associated with pins 56 and 57 of the IF/Luma/Chroma/Deflection Processor IC (U1001).

If there is no vertical sync:

Check the voltages, waveforms and components associated with pins 54, 55 and 56 of U1001.

If there is no horizontal sync:

Check the voltages, waveforms and components associated with pins 55 thru 63 of U1001.

RASTER

Check the CRT and CRT voltages. If there is no Red:

Check the voltages, waveforms and components associated with pin 9 of the IF/Luma/Chroma/Deflection Processor IC (U1001) and the Red Output Transistor (Q5001).

If there is no green:

Check the voltages, waveforms and components associated with pin 10 of U1001 and the Green Output Transistor (Q5002).

If there is no Blue:

Check the voltages, waveforms and components associated with pin 11 of U1001 and the Blue Output Transistor (Q5003).

If the raster has a keystone shape:

Check the Deflection Yoke (DY1).

If the raster has height or width problems:

Refer to the "Vertical", "Horizontal" and "Power Supply" sections of this Troubleshooting guide.

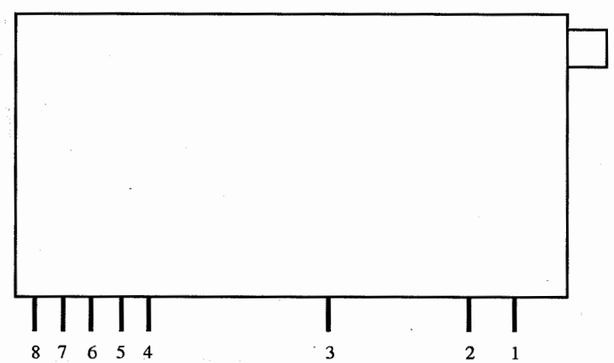
TUNER INFORMATION

TUNER VOLTAGE CHART

	VHF Low Band	VHF High Band	UHF Band
1	8.9V	8.9V	8.9V
2	11.4V	11.4V	11.4V
3	11.4V	11.4V	11.4V
4	35.2V	35.2V	35.2V
5	-11.9V	-11.9V	-11.9V
6	4.8V	4.8V	4.8V
7	4.9V	4.9V	4.9V
8	4.9V	4.9V	4.9V

Note: VHF Low Band voltages taken on channel 2.
VHF High Band voltages taken on channel 7.
UHF Band voltages taken on channel 14.

TUNER TERMINAL GUIDE



MISCELLANEOUS ADJUSTMENTS

PRETUNING

NOTE: All procedures require an antenna connected and power applied to the set.

Cable/Air Mode

1. Press the Set-up button (on remote transmitter) until "Antenna/Air" is displayed. -
2. Press the + or - button until the desired mode is shown.

Auto Program

1. Press the Set-up button (on remote transmitter) until "Auto Program" is displayed.
2. Press the + button. All available channels are scanned and stored in memory.

Add Channel

1. Press the Set-up button (on remote transmitter) until "Edit Channels" is displayed.
2. Select channel.
3. Press the + button. "+" will appear on the screen beside the channel number when channel is stored.
4. Repeat step two and three to add other channels.

Erase Channel

1. Press the Set-up button (on remote transmitter) until "Edit Channels" is displayed.
2. Select channel.
3. Press the - button. "-" will appear on the screen beside the channel number when channel is erased.
4. Repeat step two and three to erase other channels.

Clock Setting

1. Press the Set-up button (on remote transmitter) until "Clock --:--" is displayed.
2. Press the +/- buttons to set the correct time.

Sleep Timer

1. Press the Set-up button (on remote transmitter) until "Sleep --:--" is displayed.
2. Press the +/- buttons to select 30 minutes to 4 hours, in 30 minute steps.

NOTE: This set employs Digital Customer Controls. Use Video button (SW3411) to select video function to be altered, use Audio button (SW3401) to select audio function to be altered, use Set-up button (SW3421) to select set-up function to be altered, use Volume up (+) button (SW3423) to increase setting, use Volume down (-) button (SW3413) to decrease setting. Use Reset value for all adjustments unless otherwise indicated.

B+ CHECK

Tune in a picture. Set Brightness, Contrast and Color to MINIMUM. Connect a DC Voltmeter to TP126 (C of SCR4101), low side to hot ground. With 120VAC line input, B+ should read 129VDC ±1VDC. B+ Control (R4117) is factory sealed.

HIGH VOLTAGE CHECK

Tune in a picture. Set Brightness, Contrast and Color to MINIMUM. Connect a High Voltage probe to the CRT anode. High Voltage must measure 26.0KV to 27.5KV. High Voltage must never exceed 27.5KV.

RF AGC

Tune in a picture. Adjust RF AGC Control (R2314) Counterclockwise until snow (noise) appears in picture and then Clockwise until snow disappears.

CONTRAST PRESET

Tune in a picture. Set Brightness and Color to MINIMUM, Contrast to midrange. Adjust the Contrast Preset Control (R2719) to a point where highlights are visible.

TINT PRESET

Tune in a color bar pattern. Connect an oscilloscope to the red cathode, low side to ground. Adjust Tint Preset Control (R3316) to balance the 3rd and 4th bars of waveform.

HORIZONTAL CENTERING

Adjust the Horizontal Centering Control (R4321) to center the picture horizontally.

COLOR TEMPERATURE

Tune in a crosshatch pattern. Set Color, Contrast, Red Bias Control (R2903), Blue Bias Control (R2923), Green Bias Control (R2915) and Screen Control (R4705B) to MINIMUM, Blue Drive Control (R2907), Green Drive Control (R2913) and Brightness to midrange. Obtain a service line by removing power to the AC line, press and hold the Set-up button, restore power. Advance Screen Control until a line of one predominate color is just visible. Adjust two remaining Bias Controls to obtain a white line. Set Brightness and Contrast to Maximum. Adjust the Blue and Green Drive Controls for best black and white picture. Check tracking at low and high brightness.

COLOR PURITY

CAUTION: Set employs neck assemblies permanently bonded to the CRT, adjustments cannot be performed. DO NOT attempt to remove these assemblies.

CONVERGENCE

CAUTION: Set employs neck assemblies permanently bonded to the CRT, adjustments cannot be performed. DO NOT attempt to remove these assemblies.

STEREO ADJUSTMENTS

NOTE: Adjustments were made using a B&K model 2009 MTS TV/STEREO generator connected to the antenna terminals. Equivalent generator may be used. Unless otherwise noted set generator for Pilot, 1kHz audio frequency, and L-R modulating signal. Set receiver to Stereo mode.

INPUT LEVEL

Connect an oscilloscope to TP1702 (pin 2 of U1701), low side to ground. Adjust Audio Input Level Control (R1726) for 500mV p-p.

STEREO OSCILLATOR

Set generator for an unmodulated audio carrier (Pilot off). Connect an oscilloscope to TP1718, low side to ground. Adjust Stereo Oscillator Control (R1741) for 15734Hz ±150Hz.

EXPANDER GAIN

Select 300Hz audio frequency, and Left modulating signal on generator. Connect a DC Voltmeter to TP1719 (base of Q1705), low side to ground. Adjust Expander Gain Control (R1758) to read 4.75VDC ±0.5VDC.

TEST EQUIPMENT

Test equipment listed by participating manufacturers illustrates typical or equivalent equipment used by Sams engineers to obtain measurements. This equipment is compatible with most types used by field service technicians.

Equipment	B&K Precision No.	Sencore No.
Oscilloscope	1541A, 2120, 2125, 2160, 2190, 2522	SC61
Generators		
RGB	1249A, 1260	RG67
Multiburst Signal	1251, 1260	VA62A
Color Bar	1211A, 1249A, 1251, 1260	VA62A, CG25,NT64
TV Stereo	2009	ST65, ST66
Analog VOM	114, 117, 177, 214	-
Digital VOM	377, 388HD, 2700 Series, 2831A, 2860, 2900 Series	DVM37, DVM56A, SC61
Frequency Meter	1803A, 1804A, 1805, 1822, 1851, 1855	FC71, SC61
Hi-Voltage Probe	HV-44	HP200
VOM/DMM	-	TP212
Accessory Probes	PR-28(HV)	-
Isolation Transformer	TR110, 1604, 1653, 1655	PR57
Capacitance Analyzer	810A, 815, 820, 830	LC76, LC101, LC102
CRT Analyzer	480, 490	CR70
Temperature Probe	TP-28, TP-30	-
AC Leakage Tester	1655	PR57
Logic Probe	DP21, DP51	-
Logic Pulser	DP31, DP101	-
Inductance Analyzer	875A	LC76, LC101, LC102
Flyback Yoke Tester	875A	VA62A, LC76, LC101, LC102
TV Stereo Power Monitor	-	SR68
Field Strength Meter	-	FS73, FS74
Transistor Tester	510, 520B, 530	TF46
Video Analyzer	-	VA62A
Modulator/Converter	1201	-

TELEVISION SCHEMATIC

A

B

SEE U3101 PIN 9 PAGE 3E

R2353 22K

R2325 8200

C2327 .001

20 9.0V

R2303 1300

Q2301 IF PREAMP

R2323 240 (220)

C2314 .001

TP2303

IF TO TUNER PIN 3

1.9V

9.5V

1.1V

R2304 390

R2307 10

TUNERS NOT INCLUDED IN THIS COVERAGE

C2302 .001

R2308 68

C2303 .001

R2302 100

16 11.5V

L2301

C2304 .001

R2309 560

SW2301 SAW FILTER

4 1 20

5 3 2

R2311 620

L3202

L2306

C2311 33pF NPO

R1222 240

C1209 33pF NPO

L1206 2.0

C1223 33pF NPO

CF1201 4.5MHz FILTER

R1207 2000

C1211 .01

SEE Q1705 CONTROL VOLTAGE BUFFER PAGE 3B

PART OF U1001 IF/LUMA/CHROMA/DEFLECTION PROCESSOR

36 35 30 41 38 39 40 32 33 37 29 28 31 34

2.2V 2.2V 2.1V 5.8V 5.8V 8.9V 5.0V 4.9V 4.8V 3.6V

R1221 1000

R1215 10K

L1204

R1216 10

C1217 100µF

20 9.0V

C1208 1µF 100V

R1214 27K

R1201 470

C1201 470pF

R1208 3300

SEE Q1702 AUDIO BUFFER PAGE 3A

SEE U1702 PIN 8 PAGE 3B

SEE U1702 PIN 2 PAGE 3B

42 43

5.5V 4.3V

PART OF U1001 IF/LUMA/CHROMA/DEFLECTION PROCESSOR

4.0V 4.0V 9.0V 2.1V 8.4V 9.0V 8.4V 6.2V 4.9V 6.1V

21 46 18 24 25 26 27 22 19 23 45 44 47

R2314 RF AGC 100K

R2316 3000

20 9.0V

IF AGC RANGE 5.1V TO 8.4V

SEE Q1404 SWITCH PAGE 3F

L2304

20 9.0V

C2309 .022

R2310 150K

L2308

C2318 18pF NPO

R2313 1500

R2319 1000

Q2305 VIDEO BUFFER

4.9V 5.3V

R2340 470

20 9.0V

R2318 330 2%

L2303 1.0

CF2301 4.5MHz FILTER

R2326 1000

Q2302 VIDEO BUFFER

5.3V 4.7V 10.2V

R2321 2000

R2320 360

15 11.7V

R2330 51

R2331 470

R2341 910

20 9.0V

SEE Q3301 SYNC SEP PAGE 3F

SEE U1401 PIN 8 PAGE 3B

2V 10µs

2.5V 10µs

TAKEN WITH BAR SWEEP GENERATOR

USED IN CHASSIS CTC167R

AGC TO TUNER PIN 1

R2338 10K

C2333 4.7µF 100V

R2339 10K

2V 5ms

2V 10µs

RF AGC RANGE 3.4V TO 9.0V

R2315 39K

20 9.0V

3V 10µs

SEE Q1404 SWITCH PAGE 3F

R2312 51

C2307 .47µF

L2310

C2313 7pF NPO

C2332 33µF

C2312 .22

NC

54 1.0V

.5V

PART OF U1001 IF/LUMA/CHROMA/DEFLECTION PROCESSOR

57 56 60 63 50 61 62 59 58 16 1 64 2.6V 2.7V

5.5V 3.0V 4.6V 5.0V 5.0V 2.4V 1.7V

R2402 330K

22 6.8V

CR2401

R2405 100

Q2401 SYNC KILL

5.6V .7V

R2404 510

R2406 3.9M

R2403 100

C2403 1µF 100V

R2407 2000

SEE U3101 PIN 19 PAGE 3F

C4311 .022

C4309 10µF

Y4301

R4307 620

R4308 2400

R4313 1000

C4319 .001

C4320 100pF NPO

R4309 3000

R4323 100K

C4322 .0047

R4322 8200

R4320 22K

C4321 .0022

R4302 5100

R4321 HORIZ CENTERING 20K

CR4305

R4325 1000

C4901 150pF 250V

R4901 100

CR4901

C4902 .1

R4902 27.4K (28K) 1%

USED IN CHASSIS CTC167R

R4903 39.2K 1%

R4905 10K

C4904 10µF

R4904 22K 2%

C4905 .001

1.7V

CR4902

11.9V

C4903 .001

XRP-2 XRP-1

J4901 2 J4901 1

22 6.8V

20 9.0V

R4520 3300

Q4503 VERT RESET

.7V 1.1V

R4518 8200

12 44.0V

R4501 10K

20 9.0V

R4525 47K

Q4501 VERT SAWTOOTH

10.1V 12.1V 12.7V

R4502 10K

R4503 12K

SEE U3101 PIN 27 PAGE 3F

C4506 .33 63V

R4505 560K

R4515 27K

C4513 .22

C4507 1500µF 10%

SEE Q3303 VERT KILL PAGE 3F

R4504 3.3M (5.6M)

C4505 2.2µF 10%

R4512 3.9M

R4526 750K

12 44.0V

R4521 1000

Q4502 ERROR AMP

10.8V .9V 12.7V

R4508 1.8M

R4509 20K

C4509 .001

R4519 2000

R4507 200K (150K)

R4514 1100

R4511 1000

R4513 VERT HEIGHT 350

R4510 .75 (.82)

1.1V 5ms

SEE Q4805 +26V CLAMP PAGE 3D

88V 10µs

12V 10µs

Q4401 HORIZ OUT

129V △

-.1V △

DO NOT MEASURE

7V 10µs

R4301 220

Q4302 BUFFER

2.8V 2.3V

R4327 390

R4326 10K

22 6.8V

22 6.8V

R4304 160

C4302 .33

Q4301 HORIZ DRIVER

0V 17.8V

CR4301

C4310 470pF

T4301

3 6 2 4 1 10 4

2.4

R4306 680

C4304 470pF 250V

C4317 .0047 250V

C4306 4.7µF

R4305 100 (68)

R4410 47 (10)

C4401 470pF

USED IN CHASSIS CTC167R

△ TAKEN FROM COMMON TIE POINT

CR4606

CR4707

4 22.4V

10 26.0V

TO TUNER PIN 2

16 11.5V

TO TUNER PIN 6

17 5.0V

TO TUNER PIN 4

31.5V

C3603 68µF 10%

C3604 .01

CR3602

R3607 820

12 44.0V

TO TUNER PIN 5

24 -10.5V

A1 A2 A3 A

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TELEVISION SCHEMATIC continued

C D

Short
Excessive Bright
(Retrace)

R2719 CONTRAST PRESET 300
R2716 240 (220)
R2706 560
C2723 22pF NPO
DL2701 10.5
R2711 62 (220)
CR1502
C2709 82pF NPO
C2708 470pF
R2705 820
R2712 620 (470)
2.2 L2701
C2701 10µF
SEE Q1502 LUMA AMP PAGE 3B
NOT USED IN CHASSIS CTC167C
TAKEN WITH CHROMA BAR SWEEP GENERATOR
.2V 10µs
.9V 10µs
C2805 33pF
NOT USED IN CHASSIS CTC167C
SEE Q1504 CHROMA AMP PAGE 3B
C2803 56pF NPO
CR1501
SEE Q1403 VIDEO AMP PAGE 3B
R2813 750
L2802
C2816 150pF NPO
CR1503
SEE Q1503 LUMA AMP PAGE 3A
R2401 300
C2401 1µF 100V
C2402 .001
7.7V 10µs
SEE U3101 PIN 2 PAGE 3E
R3312 1000
C2707 .1
R2729 240
R2735 47K
C2722 12pF NPO
CR2702
20 9.0V
CR2709
CR2703
Q2901 LUMINANCE BUFFER
6.8V
6.9V
0V
R2914 10
R2901 180
R2902 390
15 11.7V
7.6V 10µs
8V 10µs
TAKEN WITH BAR SWEEP GENERATOR
Q2706 OSD BLACK INVERTER
R2733 27K
.7V
.2V
SEE U3101 PIN 25 PAGE 3F
C2720 68pF NPO
R2734 680
20 9.0V
C2724 220pF NPO
R4524 680
53 52 51 13 9
4.0V 2.6V 5.3V 6.9V 5.4V
3.5V
PART OF U1001 IF/LUMA/CHROMA/DEFLECTION PROCESSOR
5.4V 5.3V
12 48 3 4 6 2 17 5 15 14 8 7 10 11
7.6V 1V 5.8V 2.4V 4.2V 3.9V 5.2V 1.3V 2.9V 7.6V 3.7V
49
C2809 .47µF 100V
R2808 330K
20 9.0V
R2811 3000
Y2801 3.58MHz
C2813 10pF NPO
R2812 2000
C2814 .01
C2821 39pF NPO
R2814 120K
C2717 2.2µF 100V
C2810 .012
SEE U3101 PIN 5 PAGE 3F
R2731 1000
R2720 220K
C2706 1µF 100V
CR2707
C2705 .47µF 100V
C2812 .01
C2811 4.7µF 100V
R2810 1000
R2809 1500
20 9.0V
SEE U3101 PIN 3 PAGE 3F
R3315 1000
R2815 180K
C2820 1µF 100V
C2817 .01
SEE U3101 PIN 4 PAGE 3F
C2818 1µF 100V
Q2703 BEAM LIMIT
R2718 1000 9.7V
5.5V
CR2701
R2713 22K
R2701 31.6K 1%
C2715 10µF
CR2708
12 44.0V
20 9.0V
SEE U3101 PIN 6 PAGE 3F
R3329 910
R2708 10K
C2718 1µF 100V
1V 10µs
R2722 390
E1 E5001
C2725 330pF
C2711 270pF
2V 10µs
R2726 390
E2 E5002
C2727 330pF
C2713 270pF
2V 10µs
R2724 390
E3 E5003
C2726 330pF
C2712 270pF
E90 E5090
E80 E5080

NC
10 0V
6 .9V 25.4V
LA7831 VERT OUT
U4501 1.9V 24.8V
5 9 8 1 2 3 7 4
12.7V .9V
C4502 220µF
CR4504
CR4501
SEE Q4508 +26V CLAMP PAGE 3D
C4511 .001
R4506 3.3 1W
C4503 470µF
R4517 1200
10 26.0V
52V 5ms
DY1 YOKE
1.4
5.6
E4401 1
E4501 1
E4502 2
E4402 2
R4528 .51
C4508 .22 100V
C4512 .1 100V
R4516 47
R4527 470
SEE T4801 PIN 7 PAGE 3D
SEE T4801 PIN 10 PAGE 3D
C4403 .43 (.56) 250V
USED IN CHASSIS CTC167R
C4405 .0047 250V
R4403 220 1W
MAGNET # L4402
30V 10µs
T4401
11 12 8 4 7 10 9 5 3 1 2 6
.7 .2 .2 .2
HV ANODE 26.0KV TO 27.5KV
3 129V △
SEE POWER SUPPLY PAGE 2G
SEE CRT FILAMENTS PAGE 2H
SEE POWER SUPPLY PAGE 2G
R2781 27K
A
R4705A FOCUS
B
R5015 3.3M
R4705B SCREEN
C
D0 E11
SG4701 SPARK GAP
C4711 .01 1KV
PART OF MAIN BOARD
R4404 510K
R4405 510K
R4702 82K
R4703 18K
SEE Q4801 ERROR AMP PAGE 3D
30V 5ms
FB4401
NOT USED IN CHASSIS CTC167R
CR4502
CR4405
R4407 2000
SEE U3101 PIN 26 PAGE 3B
C4510 .1
CR4506
R4409 680
SEE Q4801 ERROR AMP PAGE 3D
R4523 680
CR4503
C4406 470pF N1500 1.5KV
C4402 .0145 3.5% 1.6KV
CABLING:
HEAVY LINES REDUCE
USE OF MULTIPLE LINES
A4 A5 A3 A1 A2 A5 A6 A7 A4 A

PHOTO CIRCUITRACE = 11
SCHEMATIC CIRCUITRACE = 11

FOR SCHEMATIC NOTES SEE PAGE 3D

POWER SUPPLY SCHEMATIC

120VAC 700mA POLARIZED
P1
P/J4001
F4001 5A
L4001
C4001 .22 600V
P/J4001
PART OF MAIN BOARD
SG4002 GAP SPARK
SG4001 GAP SPARK
C4009
470pF
3.1M
R4001 2.7 15W
PART OF K4112 DEGAUSS
RT4201 5.3 COLD PTC
P/JDEGAUS 3
L4201 DEGAUSS
P/JDEGAUS 1
C4002 680pF 1KV
C4005 680pF 1KV
R4002 2.7M
CR4001
CR4004
C4003 680pF 1KV
C4004 680pF 1KV
CR4002
CR4003
315mA
6V 5μs
270V 10μs
PART OF T4401 .2
R4110 47
C4101 .047 250V
L4102
C4105 .001 500V
SCR4101
153V△
129V△
G 129V△
TP126
200V 10μs
R4115 2200 3W
C4106 .0027 500V
L4101
TP4008
R4101 15K 3W
R4113 4700 2W
C4007 680μF 200V
CR4104
C4102 .22
C4120 33μF 180V
△ TAKEN FROM COMMON TIE POINT
1 150V△ SOURCE
2 33.0V△ SOURCE
3 129V△ SOURCE
25V 10μs
DO NOT ADJUST
R4116 41.2K 1%
R4175 41.2K 1%
R4132 619 (634) 1%
R4117 REG B+ 20K
R4118 4220 (4320) 1%
3 129V△
USED IN CHASSIS CTC167R
R4168 220K
C4171 .027
Q4104 ERROR AMP
6.6V△
9.4V △
6.0V△
R4128 10K
R4111 22K
CR4120
C4135 .001
2 33.0V△
R4131 33K
2 33.0V△
Q4103 SAWTOOTH GEN
R4112 75K
2.0V△
1.4V△
22.9V △
R4129 22K 2%
R4109 620 2%
R4108 22K
CR4101
R4138 390
T4101
.8
.2
C4104 .001
C4118 .001 500V
CR4102
200V 10μs
C4110 10pF
1% NPO
Q4102 OSC
C4109 .01 250V
R4104 620K
32.8V△
11.5V △
2 33.0V△
R4106 150K
R4107 330K
R4105 220K 2%
2 33.0V△
Q4101 OSC
15.2V△
21.0V △
31.9V △
C4111 2pF NPO
R4103 22K 2%
CR4112
CR4103
C4108 .0033
2 33.0V△
R4102 10K
2 33.0V△
1V Sqs
C4008 .005
T4601
3
2
1
7
4
453
21.7
C4601 .001
CR4601
C4604 .001
CR4604
C4602 .001
CR4602
C4603 .001
CR4603
29mA
Q4161 +12V STANDBY REG
R4163 1200
12.4V
C4163 .01
CR4161
R4164 2000
C4161 10μF
C4162 .01
CR4160
Q4160 +5V STANDBY REG
5.6V
C3109 .01
L3101
C3112 .1
4 22.4V SOURCE
C4605 220μF
5 12.0V SOURCE
6 5.0V SOURCE
C4160 1500μF
7 5.0V SOURCE

FOR SCHEMATIC NOTES SEE PAGE 3D

PHOTO CIRCUITRACE = 11
SCHEMATIC CIRCUITRACE = 11

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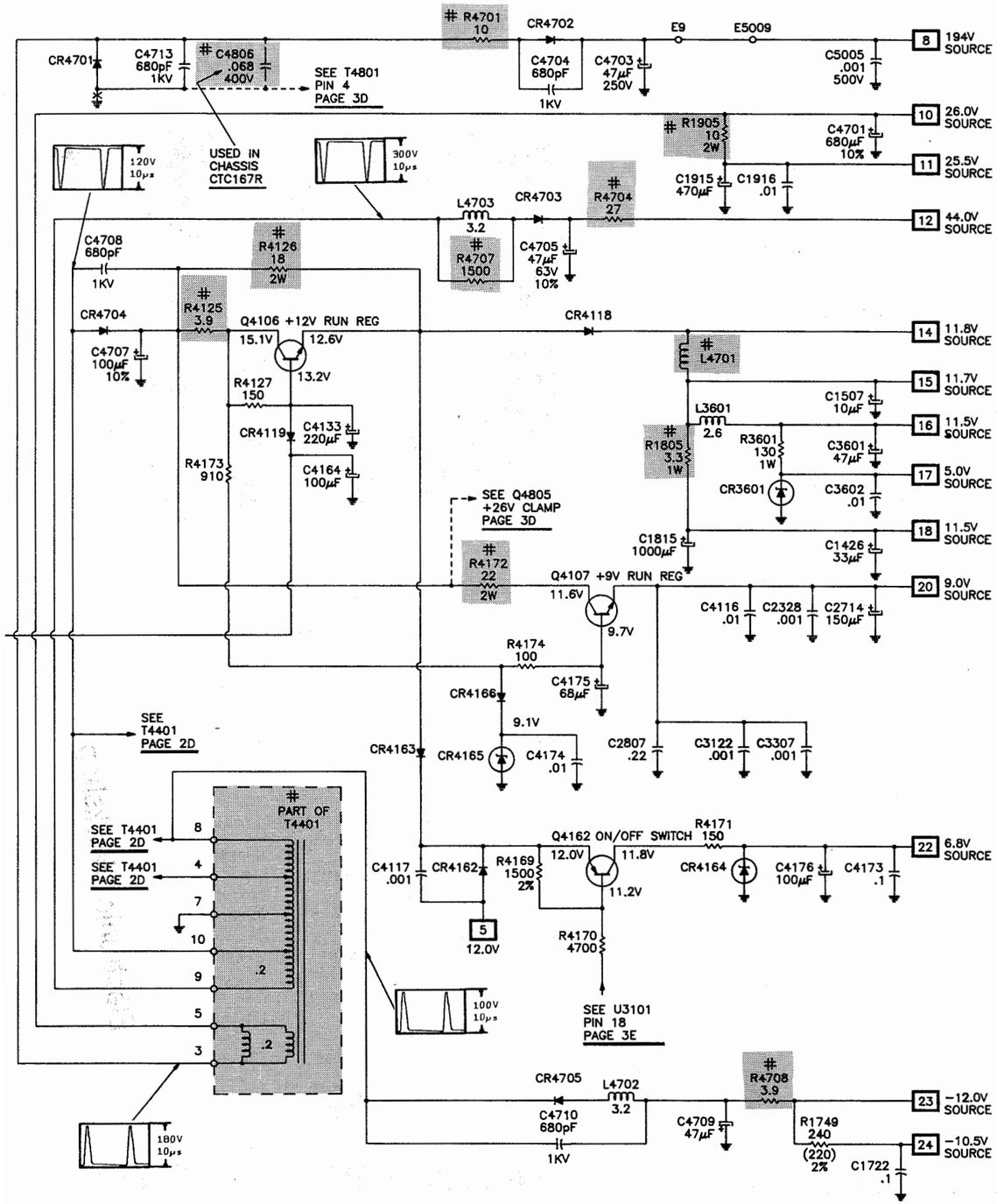
E

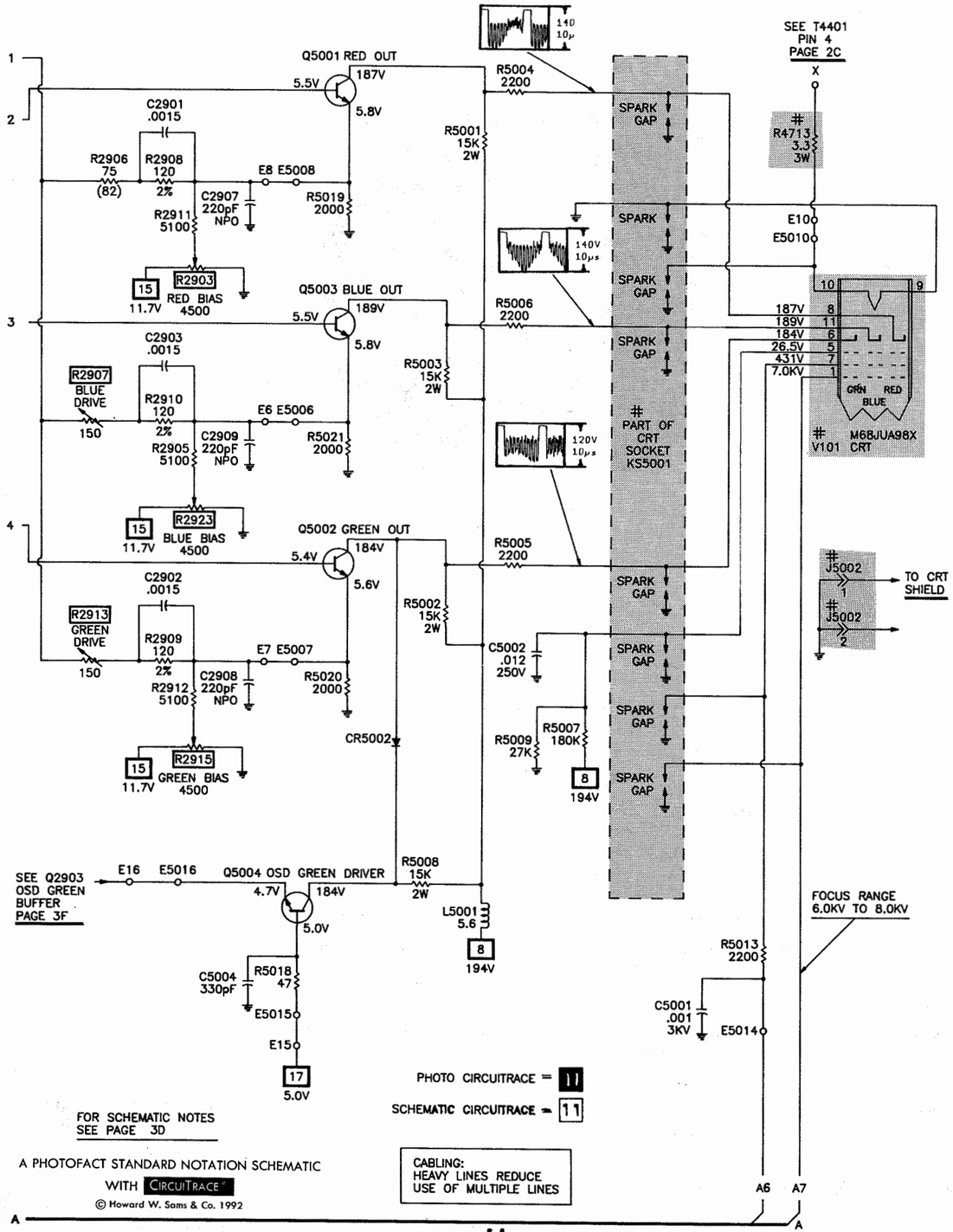
F

POWER SUPPLY SCHEMATIC continued



G

CRT SCHEMATIC



FOR SCHEMATIC NOTES SEE PAGE 3D

PHOTO CIRCUITRACE = 11

SCHEMATIC CIRCUITRACE = 11

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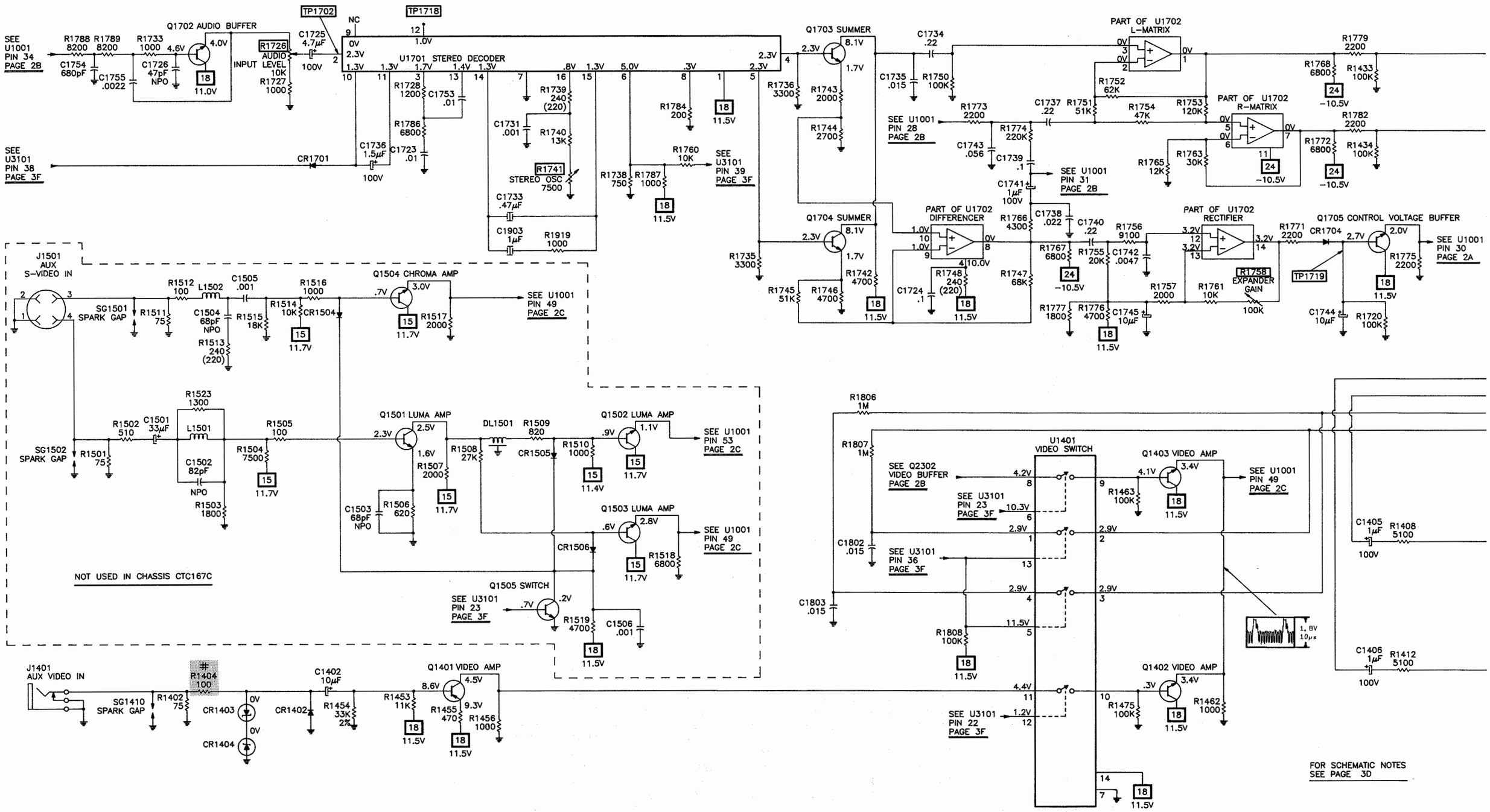
CABLING: HEAVY LINES REDUCE USE OF MULTIPLE LINES

H

AUDIO/VIDEO SWITCHING SCHEMATIC



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WITH CIRCUITRACE™

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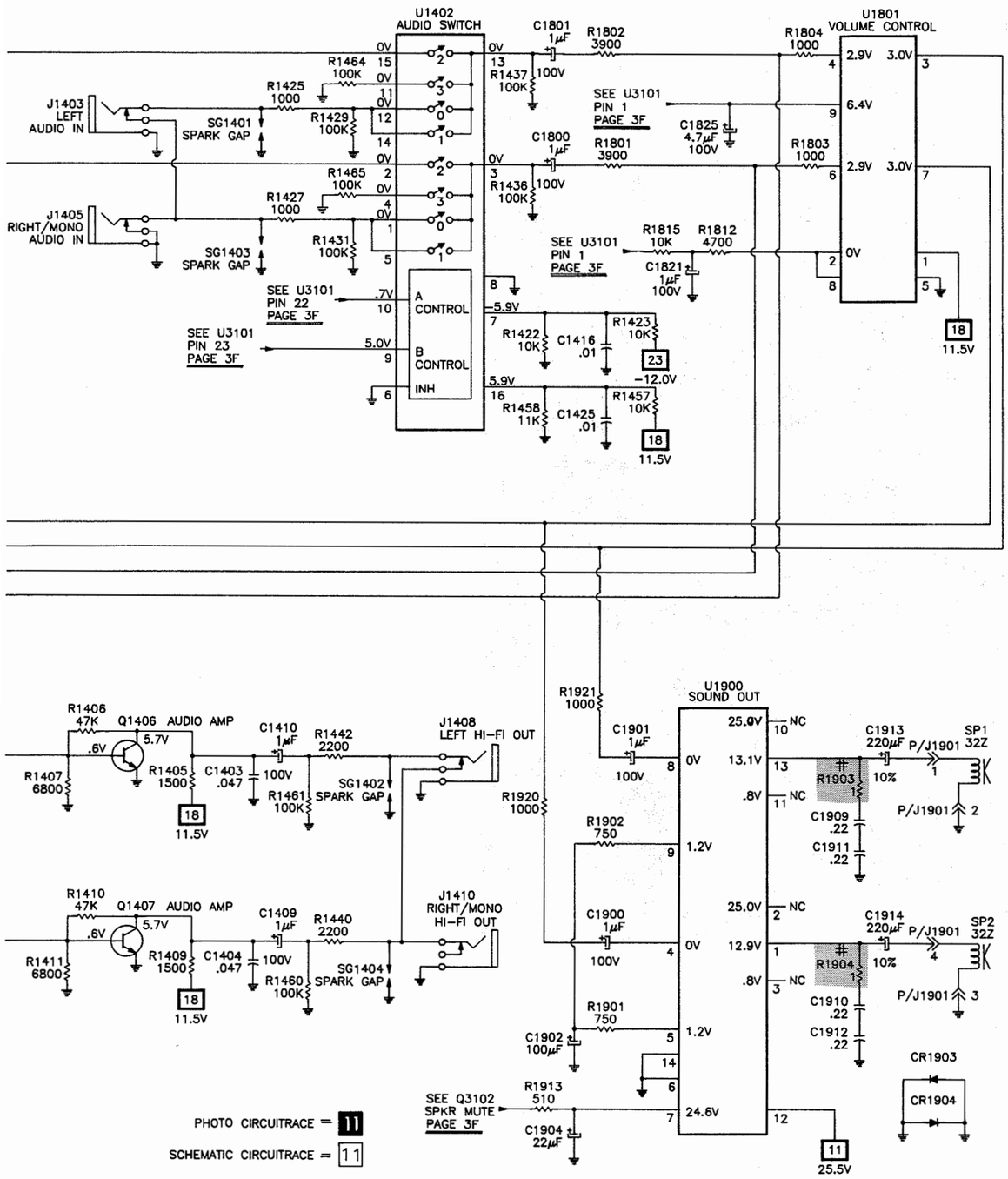
C
AUDIO/VIDEO SWITCHING SCHEMATIC continued



D
PINCUSHION SCHEMATIC

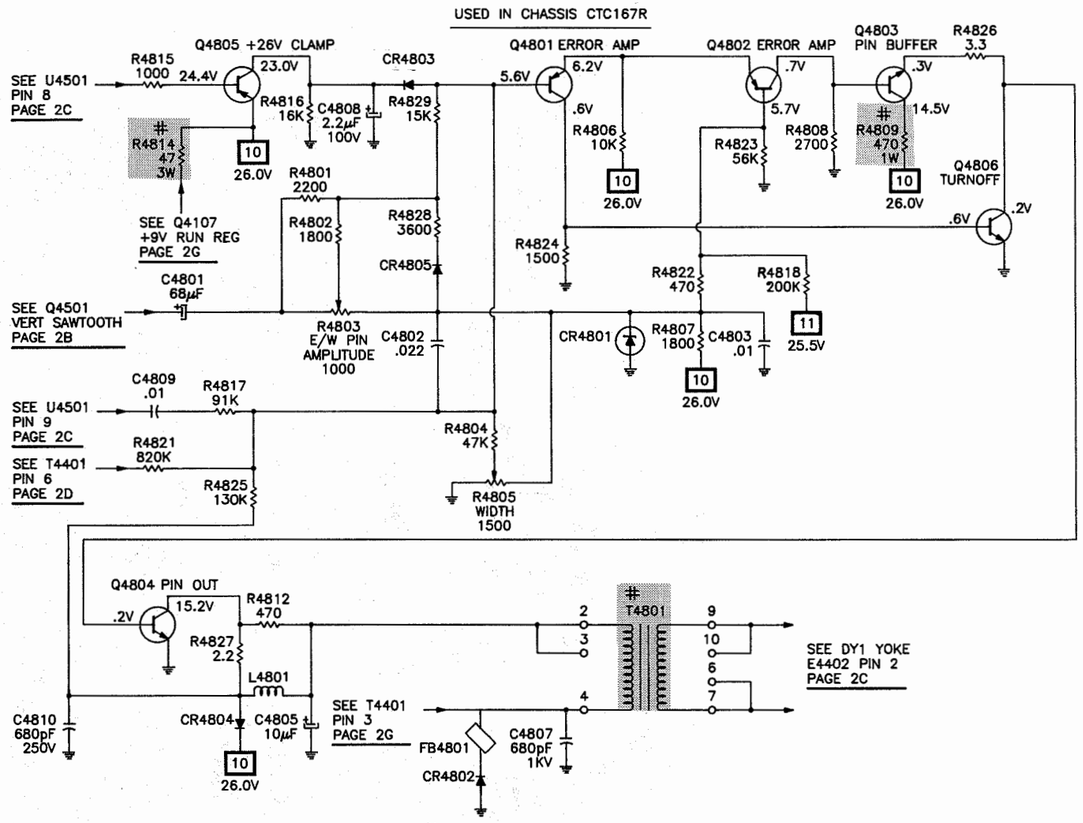


PHOTO CIRCUITRACE = 11

SCHEMATIC CIRCUITRACE = 11

 # For SAFETY use only equivalent replacement part, see parts list.

—×— Circuitry not used in some versions

- - - Circuitry used in some versions

Nominal value

Ground

Chassis

Common tie point

Waveforms and voltages are taken from ground, unless noted otherwise.
Waveforms: triggered scope, keyed rainbow generator.
Item numbers in rectangles appear in adjustment instructions.
Supply voltage maintained as shown at input.
Voltages measured with digital meter, no signal.
Controls adjusted for normal operation.
Terminal identification may not be found on unit.
Capacitors are 50 volts or less, 5% or greater unless noted.
Electrolytic capacitors are 50 volts or less, 20% or greater unless noted.
Resistors are 1/2W or less, 5% or greater unless noted.
Value in ( ) used in some versions.
Measurements with switching as shown, unless noted.

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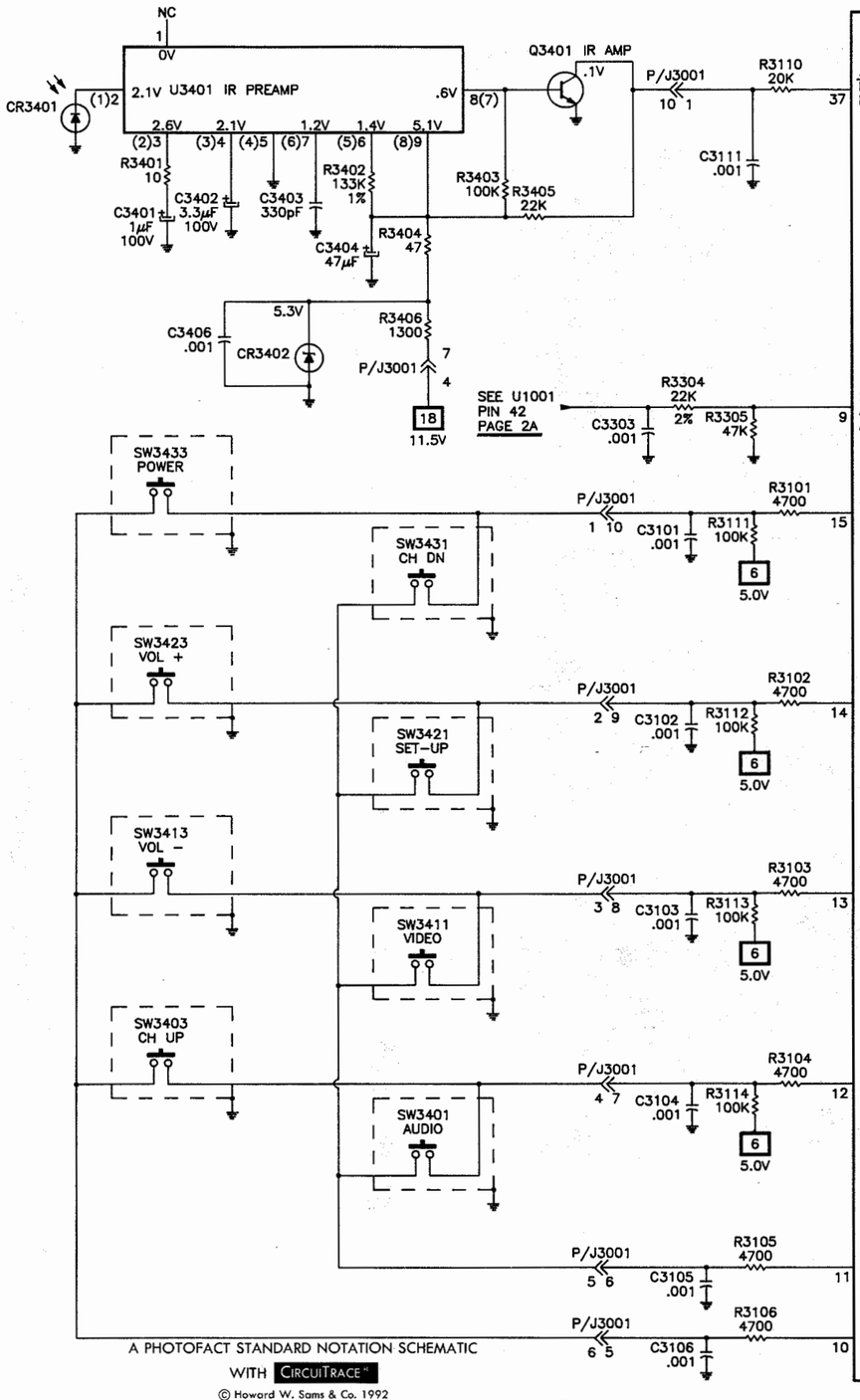
TUNER CONTROL SCHEMATIC



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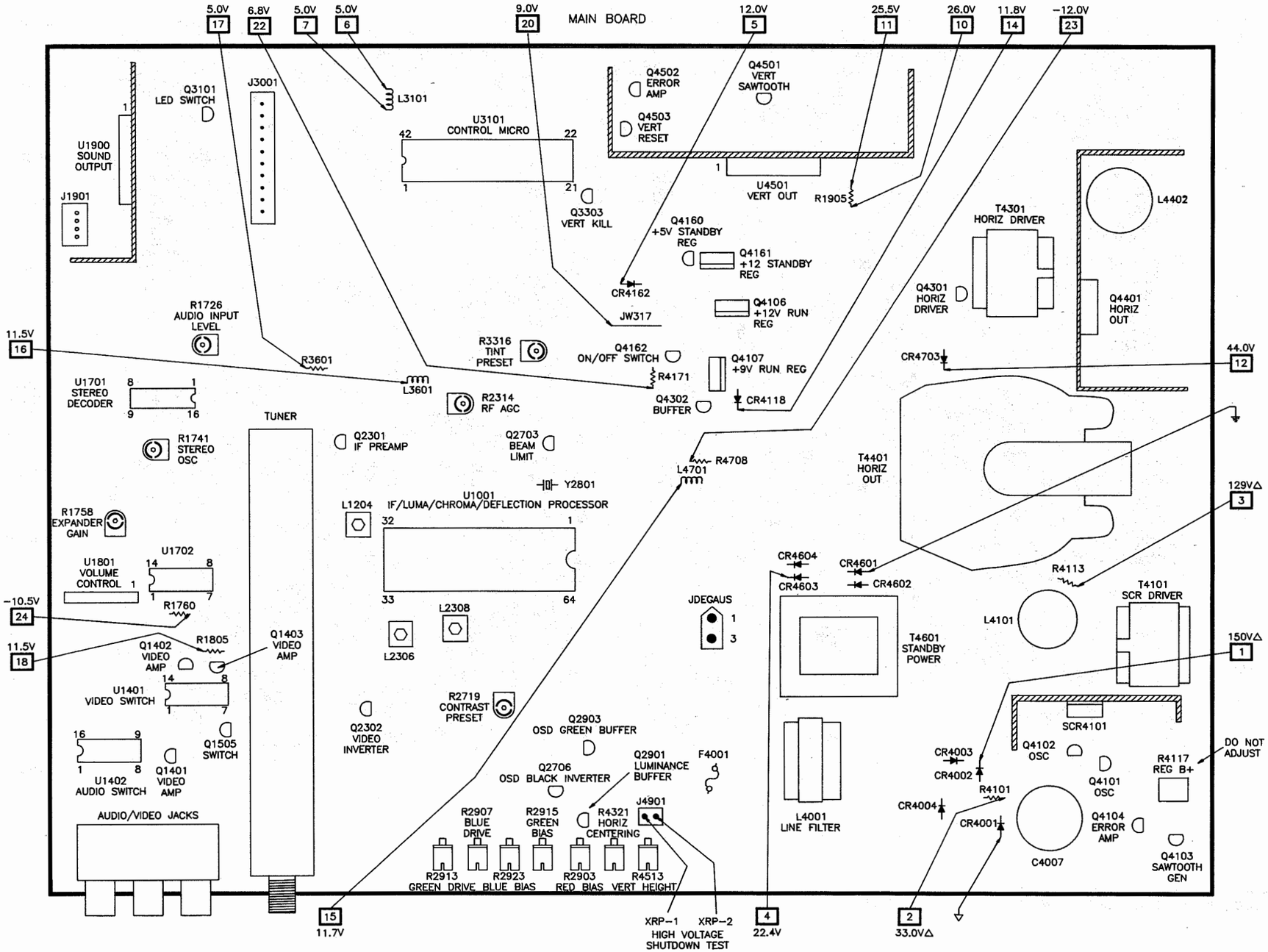
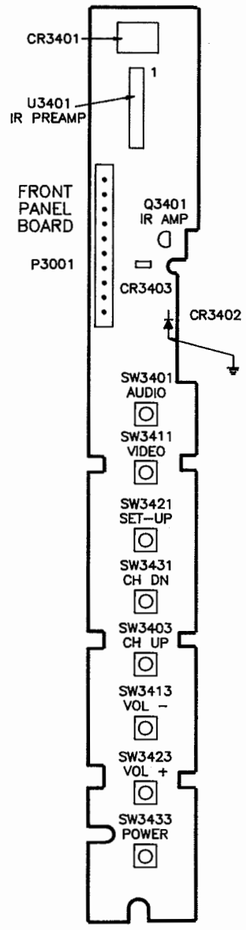
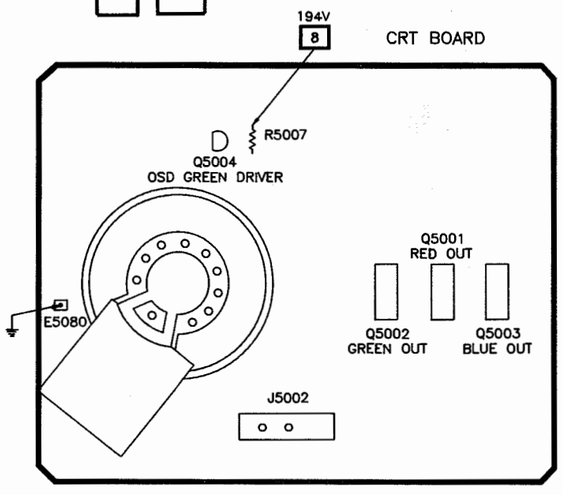
RCA
MODEL F26650WNFE1 (CHASSIS CTC167CN)

PLACEMENT CHART

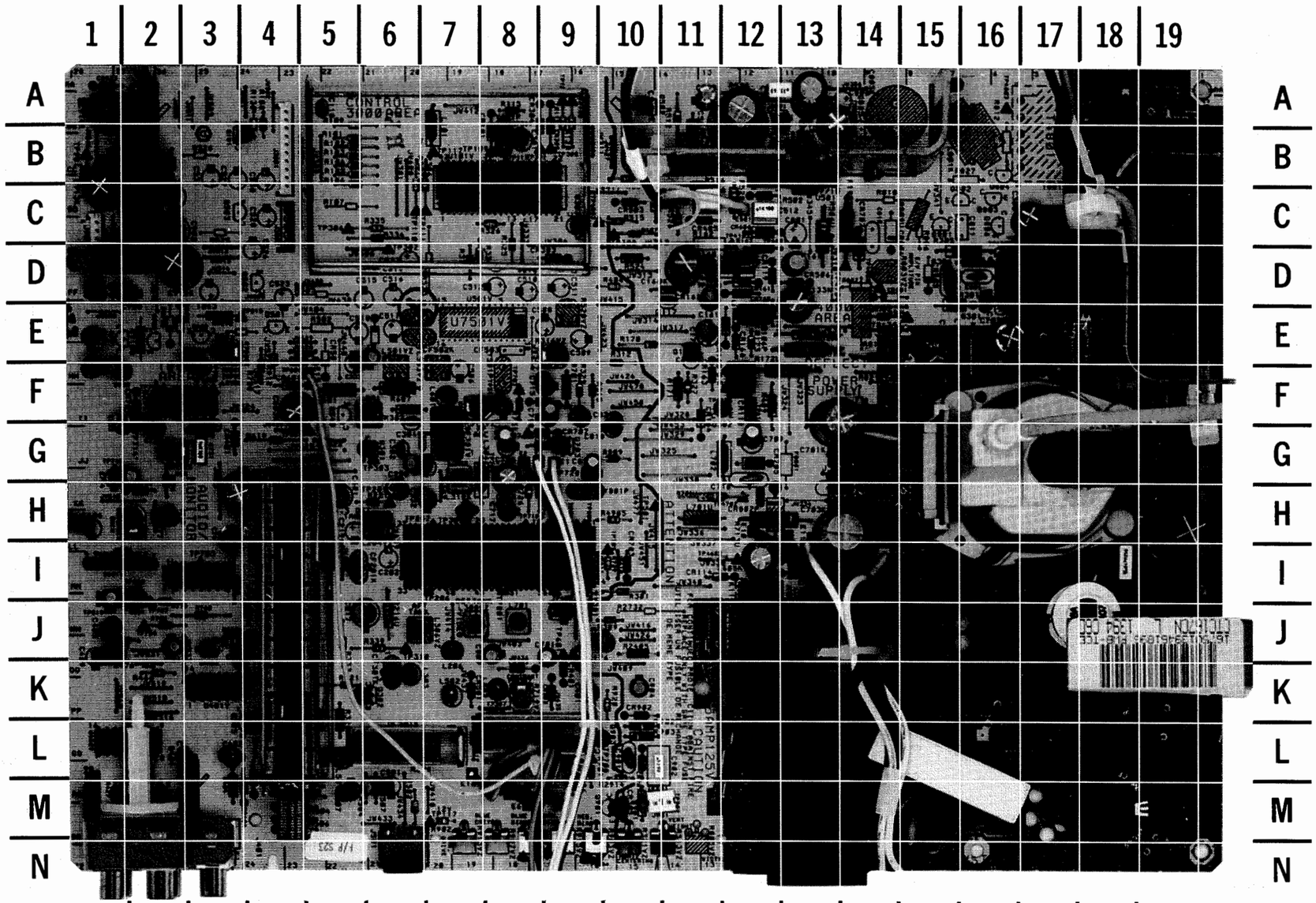






△ MEASURED FROM COMMON TIE POINT ⏚ .

MAIN BOARD - TOP VIEW

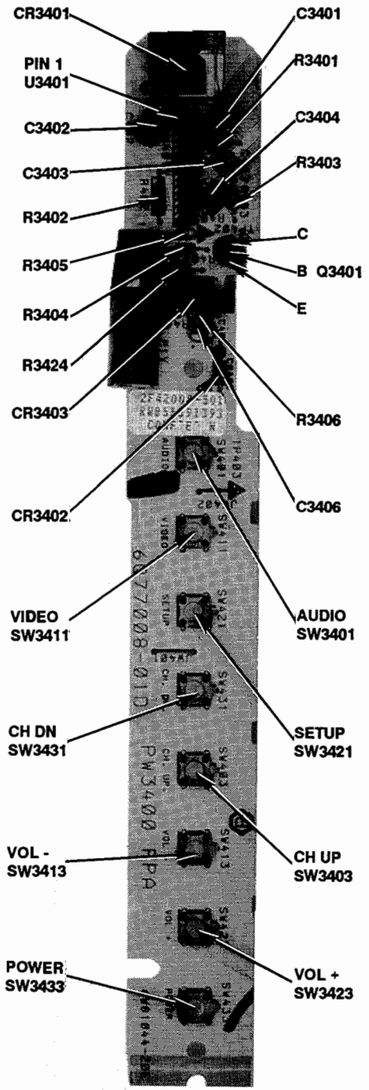


A HOWARD W. SAMS GRIDTRACE™ PHOTO

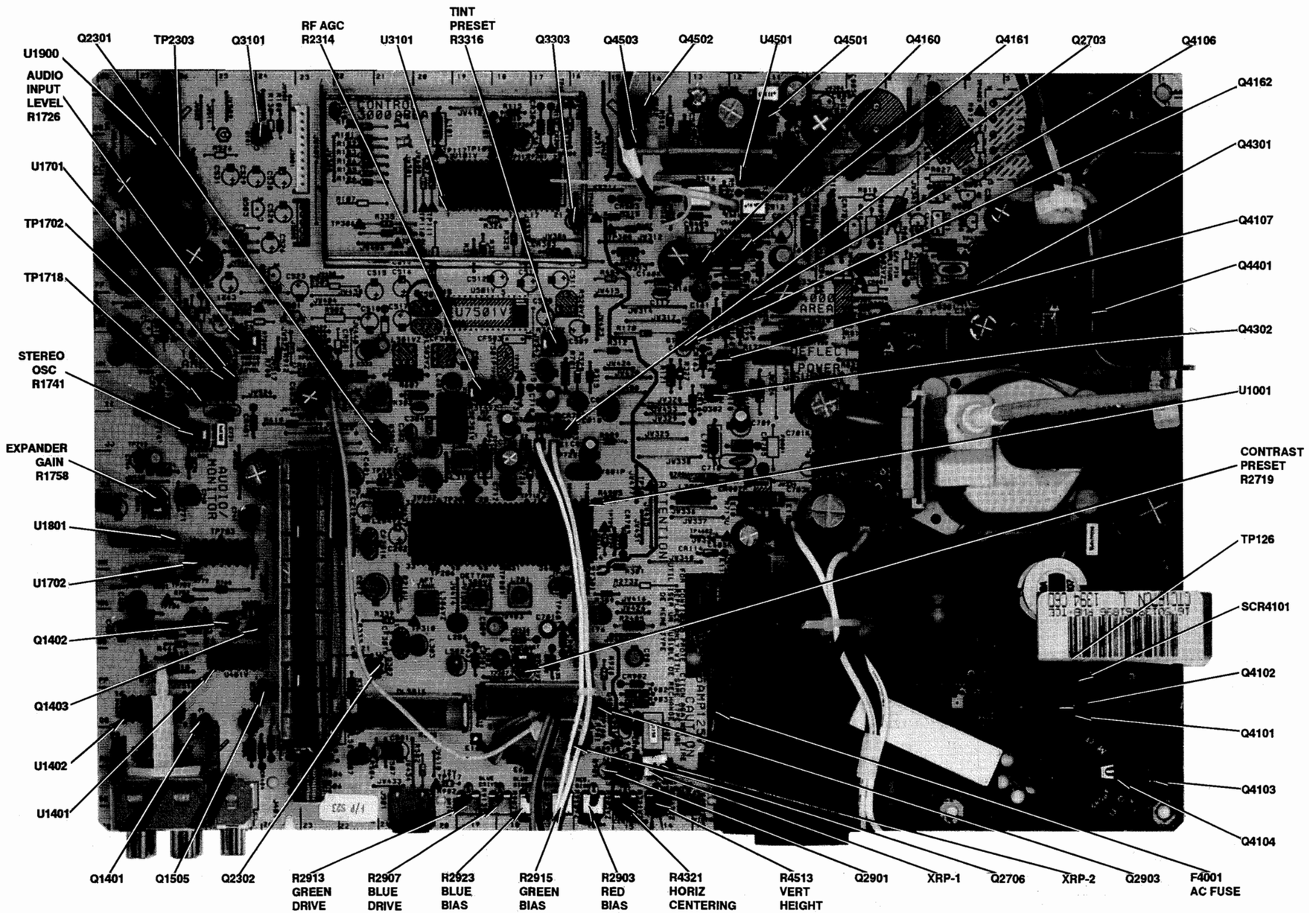
MAIN BOARD - TOP VIEW, GRIDTRACE LOCATION GUIDE

C1208	H-6	C4005	L-15	CR1503	K-8	CR4703	E-15	Q3303	C-9	R2724	H-8	R4132	K-18	U1401	K-3
C1217	J-5	C4007	M-18	CR1504	M-4	CR4704	E-17	Q4101	L-18	R2726	H-8	R4163	D-12	U1402	L-1
C1402	L-3	C4008	M-15	CR1505	M-4	CR4705	G-12	Q4102	L-18	R2729	I-10	R4170	E-10	U1701	F-3
C1405	J-1	C4009	M-15	CR1506	M-4	CR4707	D-14	Q4103	M-19	R2731	F-8	R4171	F-11	U1702	I-2
C1406	H-1	C4101	I-18	CR1701	F-2	CR4901	L-10	Q4104	M-19	R2734	M-9	R4172	F-13	U1801	I-2
C1409	J-1	C4104	K-18	CR1704	H-2	CR4902	K-10	Q4106	E-12	R2781	G-14	R4173	E-12	U1900	B-2
C1410	M-2	C4105	J-18	CR1903	A-1	DL1501	L-6	Q4107	F-12	R2809	G-10	R4175	J-18	U3101	C-7
C1426	J-2	C4106	J-17	CR1904	A-1	DL2701	L-8	Q4160	D-11	R2901	L-9	R4301	I-10	U4501	B-12
C1501	M-6	C4108	L-18	CR2401	K-9	F4001	L-12	Q4161	D-12	R2902	M-6	R4304	E-14	XRP-1	M-10
C1507	M-5	C4109	K-17	CR2701	G-9	FB4401	E-19	Q4162	E-11	R2903	M-10	R4305	D-16	XRP-2	M-11
C1725	F-3	C4117	D-11	CR2702	L-9	J1401	N-3	Q4301	D-16	R2907	M-8	R4306	D-16	Y2801	H-9
C1731	G-3	C4118	I-19	CR2703	I-10	J1403	N-2	Q4302	F-12	R2913	M-7	R4309	J-10	Y3101	B-8
C1733	G-1	C4120	H-19	CR2707	G-9	J1405	N-1	Q4401	E-18	R2914	L-10	R4321	M-10	Y4301	J-9
C1736	G-2	C4133	D-13	CR2708	F-9	J1408	N-2	Q4501	A-12	R2915	M-9	R4322	F-16		
C1741	H-3	C4160	D-11	CR2709	M-9	J1410	N-1	Q4502	A-10	R2920	K-10	R4327	F-11		
C1744	G-1	C4161	D-11	CR3101	B-8	J1501	N-6	Q4503	B-10	R2923	M-9	R4403	D-19		
C1745	H-2	C4164	D-13	CR3303	D-9	J1901	D-1	R1216	J-6	R3101	B-5	R4407	C-10		
C1753	G-3	C4175	E-11	CR3304	B-9	J3001	C-4	R1221	H-5	R3102	B-5	R4409	F-12		
C1800	I-1	C4176	J-9	CR3305	B-9	J4001	N-13	R1404	M-3	R3103	B-5	R4410	D-18		
C1801	I-2	C4304	D-16	CR3601	F-4	J4901	M-10	R1419	G-4	R3104	B-5	R4502	B-10		
C1815	H-3	C4306	C-17	CR3602	E-4	JDEGAUS	J-11	R1425	M-2	R3105	B-5	R4504	B-13		
C1821	F-1	C4309	J-9	CR4001	M-17	K4112	J-12	R1427	M-1	R3106	C-5	R4506	C-13		
C1825	E-1	C4317	D-15	CR4002	L-16	L1204	H-6	R1440	M-1	R3108	B-4	R4510	B-11		
C1900	D-2	C4402	E-19	CR4003	L-15	L1206	J-7	R1442	M-2	R3109	B-5	R4512	A-11		
C1901	D-1	C4403	B-19	CR4004	M-15	L1501	L-5	R1457	J-2	R3115	A-8	R4513	M-11		
C1902	C-2	C4405	C-19	CR4101	K-19	L1502	K-7	R1466	K-2	R3119	B-9	R4515	C-10		
C1903	F-1	C4406	E-19	CR4102	I-19	L2301	F-6	R1476	K-2	R3120	B-9	R4516	C-11		
C1904	C-2	C4502	A-14	CR4103	M-19	L2302	G-7	R1502	M-6	R3306	C-7	R4518	C-10		
C1913	C-1	C4503	A-13	CR4104	N-18	L2303	K-6	R1504	M-6	R3307	C-6	R4519	B-13		
C1914	A-1	C4505	A-11	CR4112	L-19	L2304	G-8	R1507	M-6	R3312	E-10	R4524	D-10		
C1915	D-2	C4506	A-12	CR4114	I-11	L2306	J-6	R1512	L-7	R3315	F-9	R4525	A-12		
C2302	G-6	C4507	A-12	CR4118	F-12	L2308	J-7	R1726	E-3	R3316	E-9	R4526	C-11		
C2304	F-6	C4508	C-11	CR4119	D-12	L2310	H-7	R1741	G-2	R3317	D-7	R4528	C-12		
C2307	G-6	C4512	C-12	CR4120	M-19	L2701	J-8	R1758	H-2	R3324	D-7	R4701	H-15		
C2332	H-7	C4605	I-12	CR4160	D-12	L2802	K-8	R1768	J-3	R3325	D-8	R4702	F-15		
C2333	E-5	C4701	F-14	CR4161	D-12	L3101	B-7	R1771	H-2	R3326	C-8	R4704	E-14		
C2401	K-9	C4703	H-14	CR4162	D-11	L3301	B-8	R1776	G-2	R3329	F-9	R4707	E-16		
C2403	J-10	C4704	I-14	CR4163	F-11	L3601	F-7	R1779	I-2	R3334	C-6	R4708	H-11		
C2701	J-8	C4705	E-15	CR4164	F-11	L4001	L-13	R1782	J-2	R3335	C-6	R4713	H-12		
C2705	G-8	C4707	E-16	CR4165	E-12	L4101	J-18	R1788	F-4	R3601	F-5	R4901	M-10		
C2706	F-8	C4708	E-17	CR4166	E-12	L4102	I-18	R1805	J-3	R3607	F-6	R4902	L-10		
C2714	G-8	C4709	G-12	CR4301	E-15	L4402	C-19	R1903	C-2	R4001	M-16	R4903	L-10		
C2715	F-9	C4710	G-12	CR4305	M-10	L4701	H-11	R1904	A-2	R4002	K-15	R4905	H-10		
C2717	H-8	C4711	G-14	CR4405	C-11	L4702	G-12	R1905	C-14	R4101	L-16	RT4201	K-12		
C2718	F-9	C4713	H-14	CR4501	B-13	L4703	E-16	R1913	B-2	R4104	K-18	SCR4101	K-18		
C2809	J-8	C4901	L-10	CR4502	C-12	Q1401	L-2	R2302	F-6	R4108	M-19	SF2301	G-7		
C2811	G-9	C4902	L-10	CR4503	C-10	Q1402	J-3	R2314	F-7	R4110	H-19	T4101	J-19		
C2818	G-10	C4904	K-10	CR4504	B-13	Q1403	J-3	R2320	K-5	R4111	M-19	T4301	D-17		
C2820	F-9	CF1201	I-5	CR4506	D-13	Q1505	L-4	R2321	K-5	R4113	I-18	T4401	G-16		
C3118	A-5	CF2301	K-6	CR4601	I-14	Q2301	G-6	R2333	J-5	R4115	J-16	T4601	J-14		
C3601	H-5	CR1401	G-3	CR4602	I-14	Q2302	K-6	R2339	J-6	R4116	K-19	TP126	K-18		
C3603	F-4	CR1402	L-4	CR4603	I-13	Q2703	G-9	R2404	D-10	R4117	L-19	TP1702	F-3		
C4001	L-12	CR1403	L-4	CR4604	I-13	Q2706	M-9	R2405	J-10	R4118	K-19	TP1718	F-2		
C4002	M-16	CR1404	M-4	CR4606	C-12	Q2901	M-10	R2701	F-9	R4125	E-13	TP2303	Q-6		
C4003	L-16	CR1501	K-7	CR4701	H-14	Q2903	L-10	R2719	K-8	R4126	E-13	TP4008	I-18		
C4004	L-15	CR1502	K-9	CR4702	I-14	Q3101	B-4	R2722	H-9	R4127	E-13	U1001	H-9		

FRONT PANEL BOARD

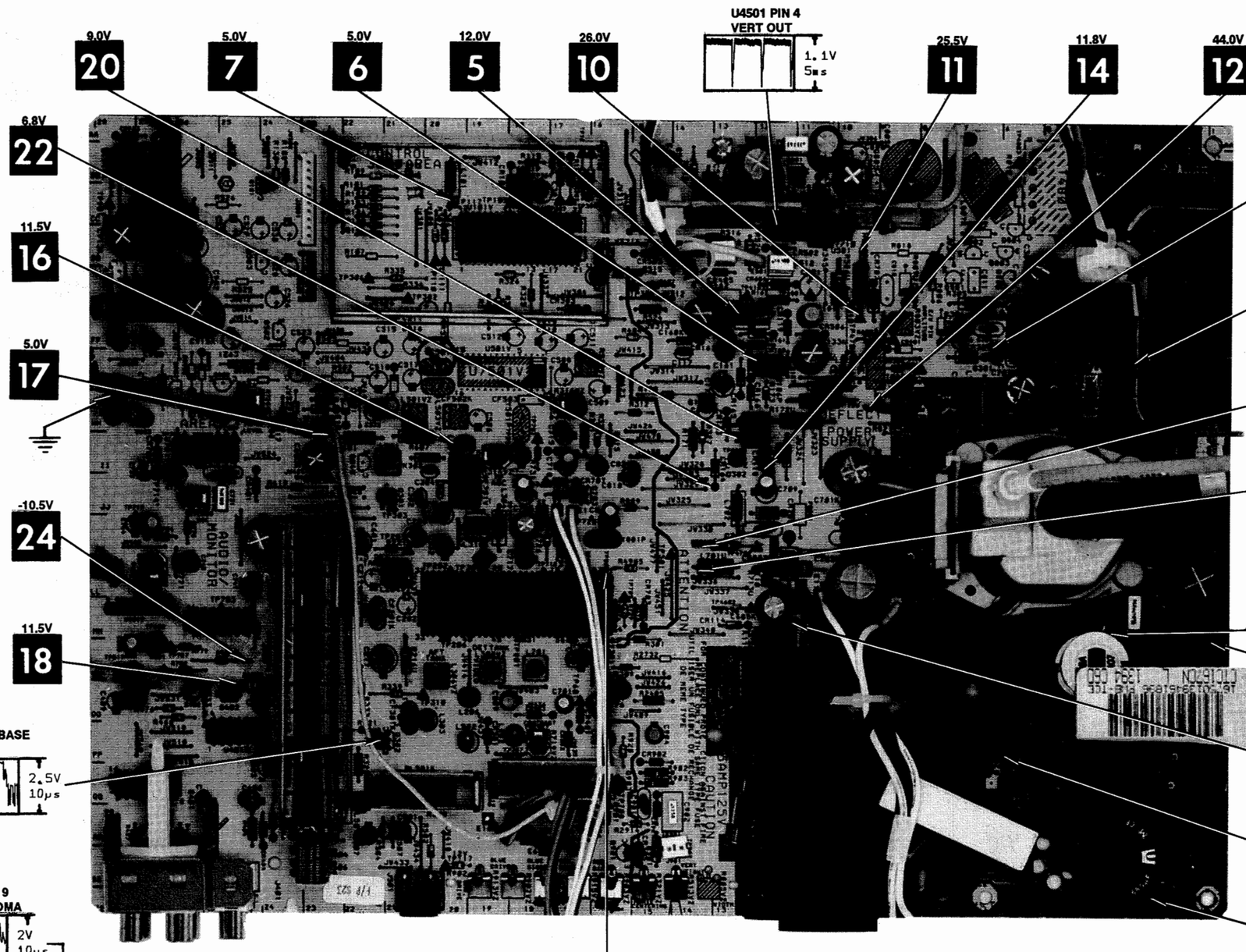


MAIN BOARD - TOP VIEW



NOTE: ARROWS ON IC'S INDICATE PIN 1 UNLESS NOTED
NOTE: ARROWS ON TRANSISTORS INDICATE BASE UNLESS NOTED

MAIN BOARD - TOP VIEW



9.0V
20

5.0V
7

5.0V
6

12.0V
5

26.0V
10

U4501 PIN 4
VERT OUT
1.1V
5ms

25.5V
11

11.8V
14

44.0V
12

6.8V
22

11.5V
16

5.0V
17

-10.5V
24

11.5V
18

Q2302 BASE
VIDEO
2.5V
10µs

Q4301 COLLECTOR
HORIZ DRIVE
88V
10µs

Q4401 BASE
HORIZ OUT
12V△
10µs

-12.0V
23

11.7V
15

TP4008

129V△
3

22.4V
4

150V△
1

33.0V△
2

U1001 PIN 9
RED CHROMA
2V
10µs

U1001 PIN 10
GREEN CHROMA
1V
10µs

U1001 PIN 11
BLUE CHROMA
2V
10µs

U1001 PIN 49
CHROMA IN
.2V
10µs

U1001 PIN 53
VIDEO IN
.9V
10µs

U1001 PIN 55
VERT OSC
3V
5ms

U1001 PIN 57
SYNC
2V
5ms

U1001 PIN 64
HORIZ OSC
7V
10µs

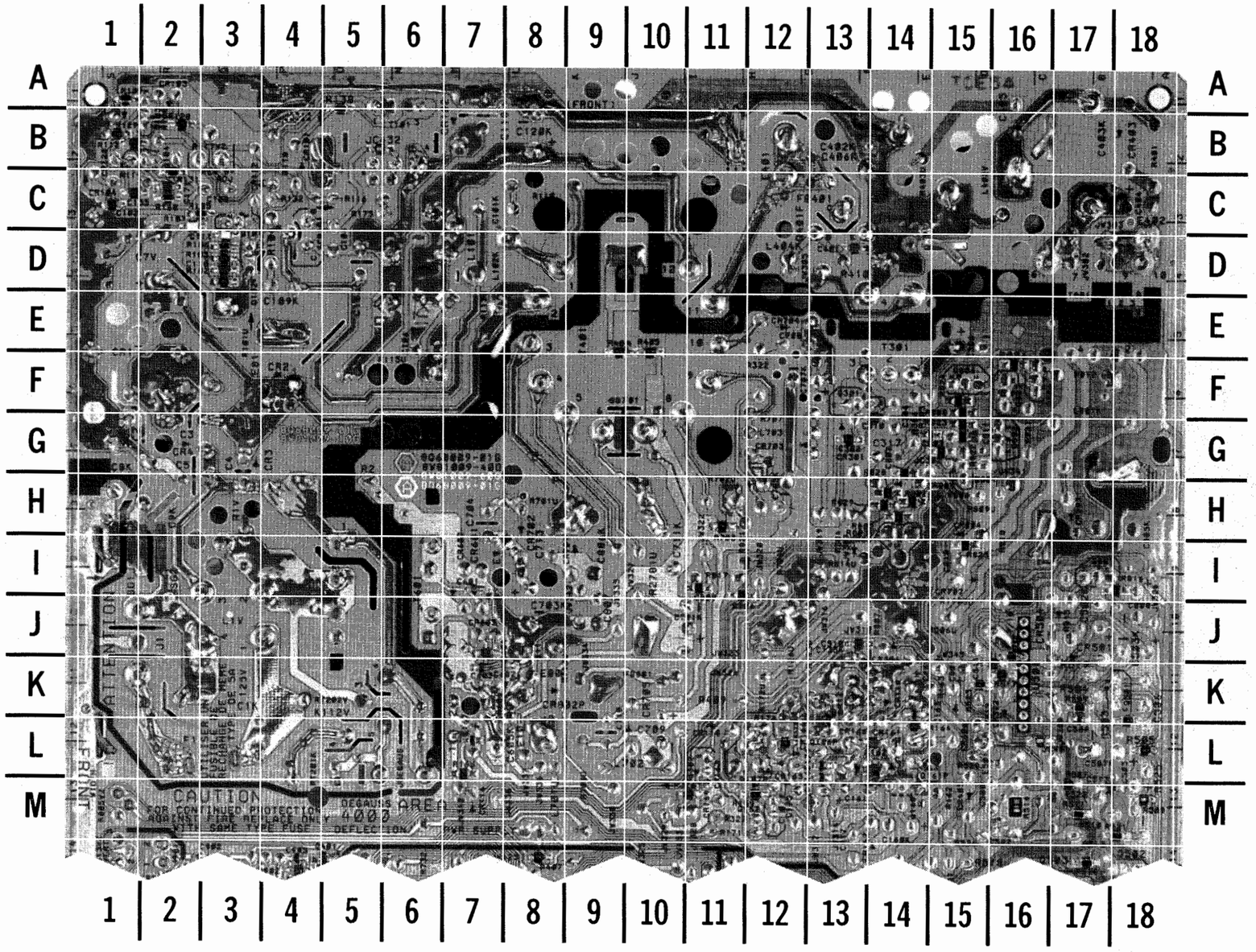
U1001 PIN 22
IF AGC
5.1V-8.4V

U1001 PIN 46
RF AGC
3.4V-9.0V

▽ COMMON TIE POINT
△ TAKEN FROM COMMON TIE POINT

A HOWARD W. SAMS QUICK-CHECKS™ PHOTO

MAIN BOARD - PARTIAL (1 0F 2) - BOTTOM VIEW

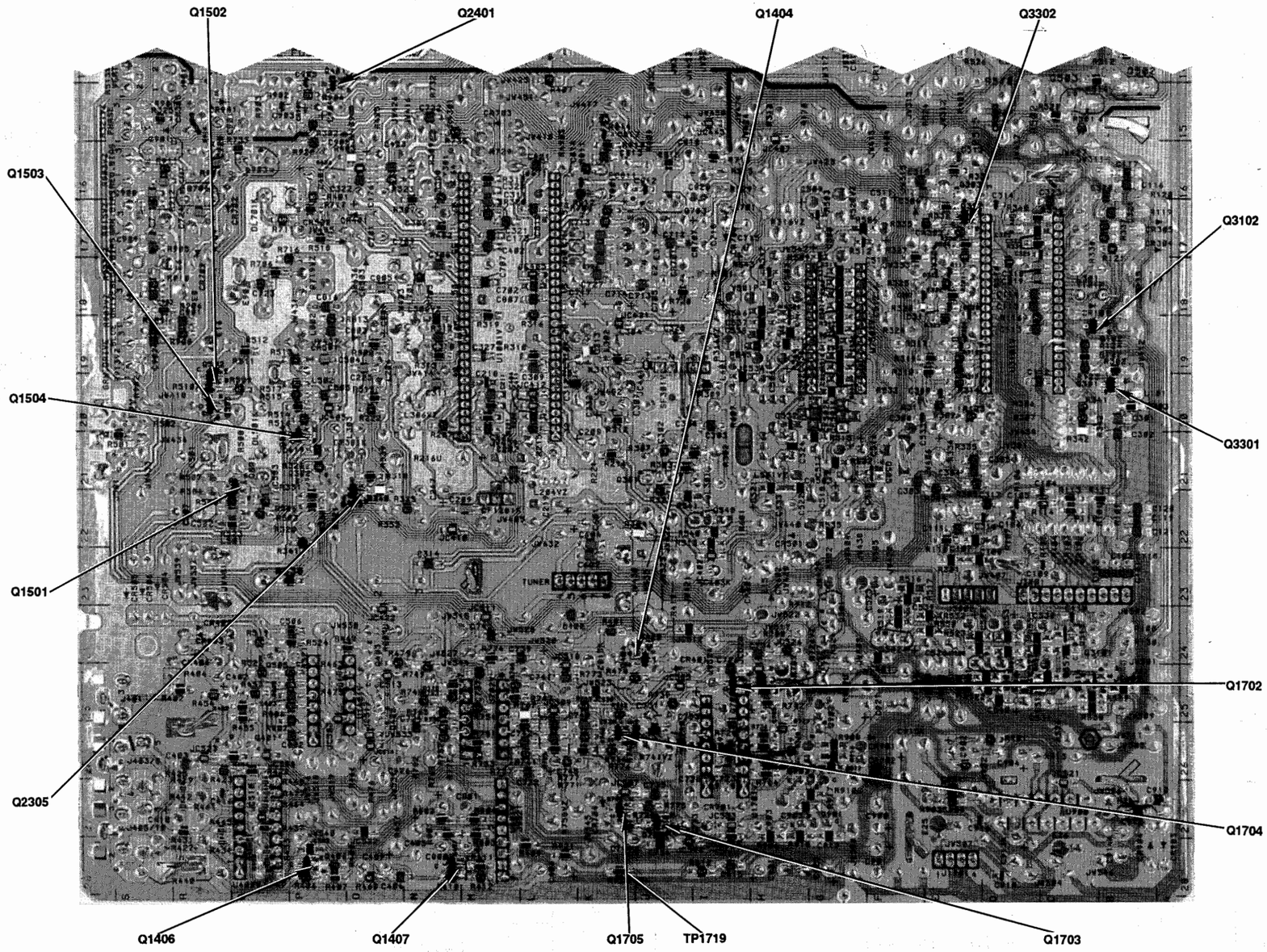


MAIN BOARD - PARTIAL (1 OF 2) - BOTTOM VIEW, GRIDTRACE LOCATION GUIDE

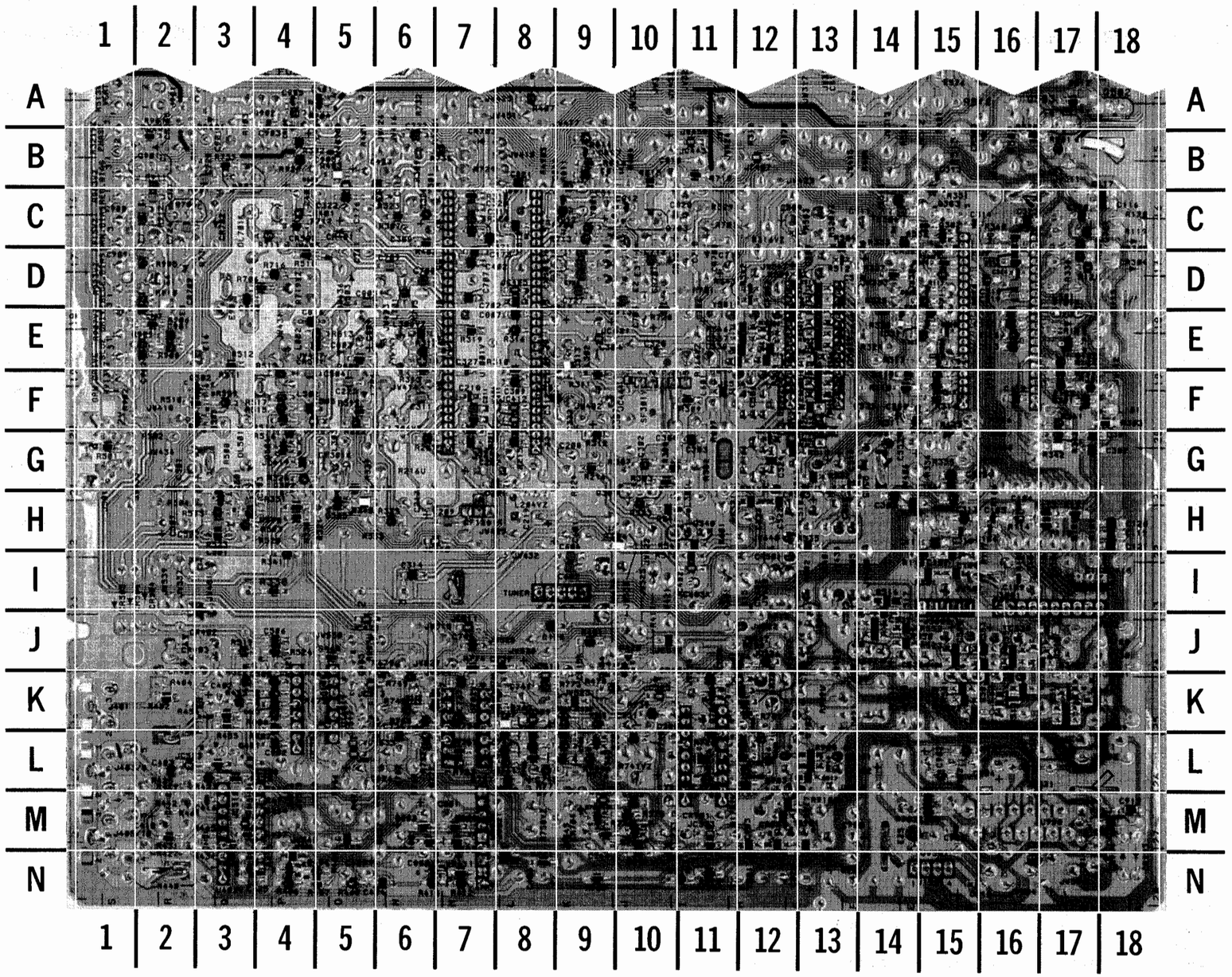
C4102	C-1	R4129	B-1
C4110	D-3	R4131	C-2
C4111	D-3	R4138	A-5
C4116	L-13	R4164	L-14
C4135	C-1	R4168	C-2
C4162	L-14	R4169	M-12
C4163	K-14	R4174	L-12
C4171	C-2	R4326	M-11
C4174	L-13	R4404	E-9
C4302	G-13	R4405	E-9
C4310	G-14	R4503	K-18
C4401	D-13	R4505	L-18
C4509	K-17	R4507	L-17
C4510	J-13	R4508	M-18
C4511	K-16	R4509	K-17
C4513	M-17	R4511	M-17
C4601	I-7	R4517	K-16
C4602	K-7	R4521	M-18
C4603	K-7	R4523	K-15
C4604	J-7	R4527	J-16
R4102	D-3	R4703	H-11
R4103	D-3	SG4001*	I-1
R4105	C-3	SG4002*	I-2
R4106	D-3	SG4701*	G-9
R4107	C-2		
R4109	A-1		
R4112	B-1	* Part of Main Board	
R4128	B-2		

A HOWARD W. SAMS GRIDTRACE™ PHOTO

MAIN BOARD - PARTIAL (2 0F 2) - BOTTOM VIEW



MAIN BOARD - PARTIAL (2 0F 2) - BOTTOM VIEW



A HOWARD W. SAMS GRIDTRACE™ PHOTO

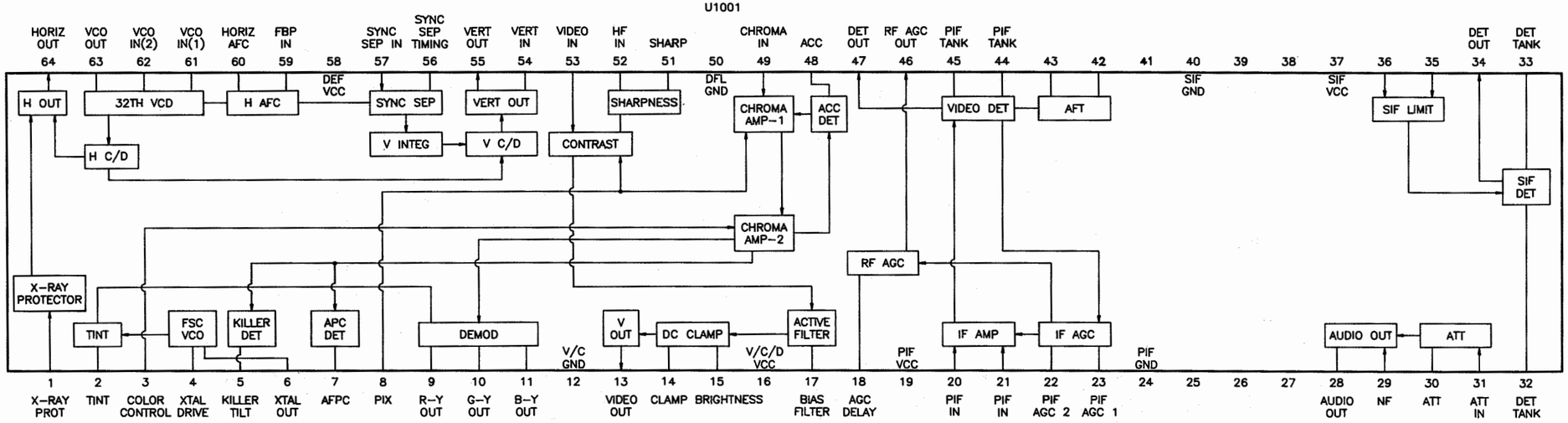
SET 2971 Page 5

MAIN BOARD - PARTIAL (2 OF 2) - BOTTOM VIEW, GRIDTRACE LOCATION GUIDE

C1201	G-7	C2727	D-9	C3320	C-17	R1454	K-3	R1756	L-8	R2407	A-8	R3330	D-15
C1209	H-7	C2803	E-4	C3321	C-17	R1455	K-3	R1757	L-8	R2705	D-6	R3331	C-15
C1211	F-7	C2805	D-5	C3323	C-16	R1456	L-3	R1760	L-2	R2706	D-4	R3332	C-15
C1223	F-5	C2807	E-8	C3325	C-16	R1458	N-3	R1761	L-8	R2708	C-9	R3333	C-14
C1403	L-2	C2810	C-8	C3602	I-9	R1460	N-5	R1763	K-6	R2711	C-4	R3336	D-17
C1404	N-6	C2812	C-10	C3604	I-9	R1461	M-2	R1765	K-6	R2712	C-4	R3337	C-17
C1416	M-3	C2813	B-9	C4173	D-7	R1462	J-5	R1766	K-8	R2713	C-9	R3338	C-16
C1425	N-3	C2814	C-9	C4311	C-7	R1463	K-5	R1767	K-8	R2716	D-4	R3339	D-16
C1502	H-3	C2816	E-4	C4319	B-6	R1464	M-3	R1772	K-6	R2718	B-11	R3340	C-16
C1503	H-3	C2817	B-9	C4320	C-7	R1465	M-3	R1773	K-8	R2720	D-10	R3341	F-17
C1504	F-3	C2821	B-8	C4321	C-7	R1468	L-3	R1774	J-7	R2733	B-3	R3342	G-17
C1505	F-4	C2901	E-2	C4322	C-5	R1475	K-5	R1775	M-10	R2735	B-7	R3343	G-17
C1506	J-4	C2902	E-2	C4903	A-4	R1477	M-3	R1777	L-8	R2808	E-5	R4302	B-4
C1722	L-8	C2903	E-2	C4905	A-4	R1478	K-9	R1784	L-2	R2810	B-9	R4307	C-6
C1723	L-11	C2905	B-4	Q1404	J-10	R1479	K-6	R1786	L-11	R2811	B-9	R4308	C-6
C1724	L-6	C2907	C-2	Q1406	N-4	R1501	G-1	R1787	K-12	R2812	C-9	R4313	C-7
C1726	K-11	C2908	C-2	Q1407	N-6	R1503	H-3	R1789	J-12	R2813	E-5	R4320	C-7
C1734	M-10	C2909	D-2	Q1501	H-3	R1505	H-3	R1801	M-6	R2814	B-9	R4323	C-6
C1735	M-10	C3101	I-18	Q1502	F-3	R1506	H-3	R1802	M-6	R2815	B-10	R4325	B-2
C1737	K-7	C3102	I-17	Q1503	F-3	R1509	F-3	R1803	M-7	R2905	D-2	R4501	B-17
C1738	L-9	C3103	I-17	Q1504	G-4	R1510	F-3	R1804	M-7	R2906	E-2	R4514	A-17
C1739	J-8	C3104	H-16	Q1702	K-11	R1511	E-3	R1806	K-4	R2908	E-2	R4520	B-16
C1740	L-8	C3105	H-16	Q1703	M-10	R1513	F-4	R1807	K-4	R2909	E-2	R4904	A-4
C1742	L-8	C3106	H-16	Q1704	L-9	R1514	F-4	R1808	K-4	R2910	D-2	TP1719	M-9
C1743	J-7	C3109	I-16	Q1705	M-9	R1515	F-4	R1812	N-11	R2911	B-2		
C1754	J-12	C3110	J-17	Q2305	H-5	R1516	G-4	R1815	N-11	R2912	C-2		
C1755	K-12	C3111	H-15	Q2401	A-5	R1517	F-4	R1901	L-15	R3110	I-15		
C1802	L-4	C3112	F-16	Q3102	E-17	R1518	D-4	R1902	L-15	R3111	H-17		
C1803	K-4	C3113	E-16	Q3301	F-17	R1519	J-3	R1919	M-11	R3112	H-17		
C1909	M-15	C3114	E-16	Q3302	C-15	R1521	K-4	R1920	N-9	R3113	H-17		
C1910	M-18	C3115	E-16	R1201	G-7	R1522	K-3	R1921	N-8	R3114	H-16		
C1911	M-15	C3116	C-18	R1207	G-6	R1523	H-3	R2303	G-10	R3116	E-16		
C1912	M-18	C3117	C-18	R1208	F-7	R1524	J-4	R2304	H-10	R3117	D-15		
C1916	M-15	C3119	H-18	R1214	G-9	R1720	M-9	R2307	G-10	R3118	D-16		
C2303	G-11	C3120	H-18	R1215	G-8	R1727	L-12	R2308	G-10	R3121	D-17		
C2309	F-8	C3121	H-18	R1222	F-5	R1728	L-11	R2309	F-11	R3122	F-17		
C2311	F-6	C3122	J-8	R1401	J-9	R1733	K-12	R2310	E-8	R3123	F-17		
C2312	F-9	C3301	G-17	R1402	K-2	R1735	L-12	R2311	F-9	R3124	E-17		
C2313	E-9	C3302	G-17	R1405	K-3	R1736	L-12	R2312	G-9	R3125	G-15		
C2314	I-6	C3303	H-14	R1406	N-4	R1738	L-12	R2313	F-6	R3302	F-17		
C2318	E-6	C3304	G-15	R1407	N-5	R1739	K-10	R2315	F-5	R3303	F-18		
C2327	F-7	C3305	G-15	R1408	N-5	R1740	L-10	R2316	E-8	R3304	H-14		
C2328	E-10	C3306	C-14	R1409	M-8	R1742	K-9	R2318	H-5	R3305	H-15		
C2402	D-7	C3307	E-14	R1410	N-6	R1743	L-9	R2319	E-7	R3308	D-15		
C2707	D-7	C3308	G-14	R1411	N-7	R1744	L-9	R2323	H-10	R3309	F-14		
C2708	D-6	C3309	F-14	R1412	N-7	R1745	K-9	R2325	H-6	R3310	F-14		
C2709	D-6	C3310	E-15	R1420	J-10	R1746	L-9	R2326	G-4	R3311	F-14		
C2711	D-9	C3311	E-15	R1422	L-3	R1747	K-8	R2330	H-4	R3313	F-15		
C2712	D-10	C3312	D-15	R1423	L-3	R1748	K-6	R2331	H-4	R3314	F-15		
C2713	D-10	C3313	B-15	R1429	M-2	R1749	K-6	R2338	I-4	R3318	F-15		
C2720	B-3	C3314	C-15	R1431	M-2	R1750	L-6	R2340	H-5	R3319	F-14		
C2722	B-6	C3315	C-14	R1433	N-3	R1751	L-7	R2341	I-4	R3320	E-14		
C2723	D-3	C3316	H-15	R1434	M-3	R1752	L-6	R2401	C-4	R3321	E-15		
C2724	C-2	C3317	H-15	R1436	M-3	R1753	L-7	R2402	C-6	R3322	D-15		
C2725	D-9	C3318	D-16	R1437	M-3	R1754	K-7	R2403	B-5	R3323	E-15		
C2726	D-9	C3319	D-16	R1453	K-3	R1755	L-8	R2406	B-5	R3327	D-14		

IC FUNCTIONS

U1001



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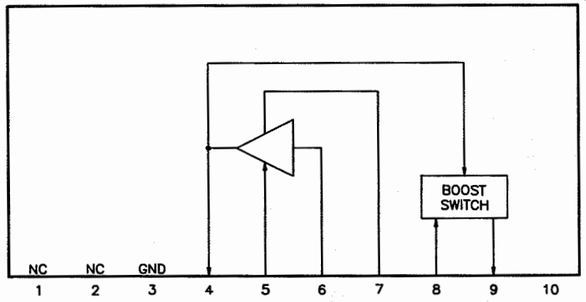

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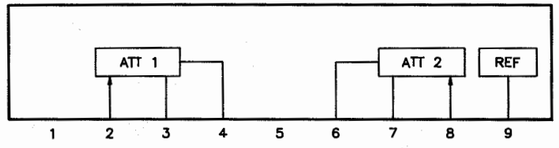

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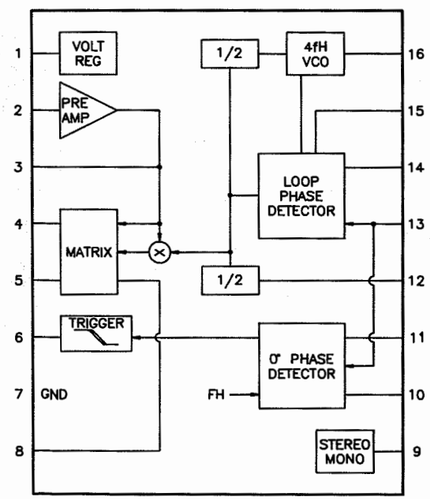

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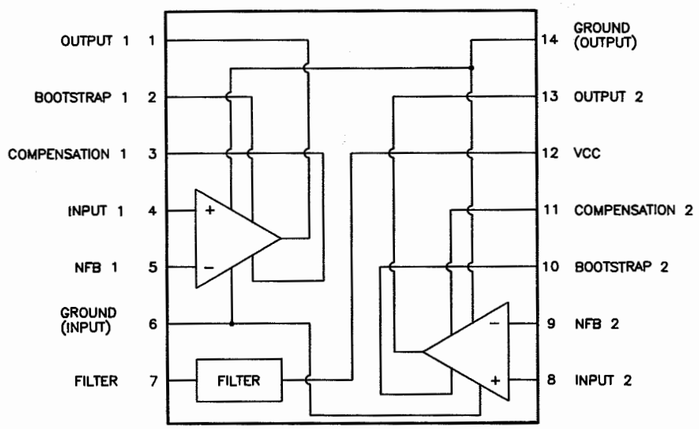
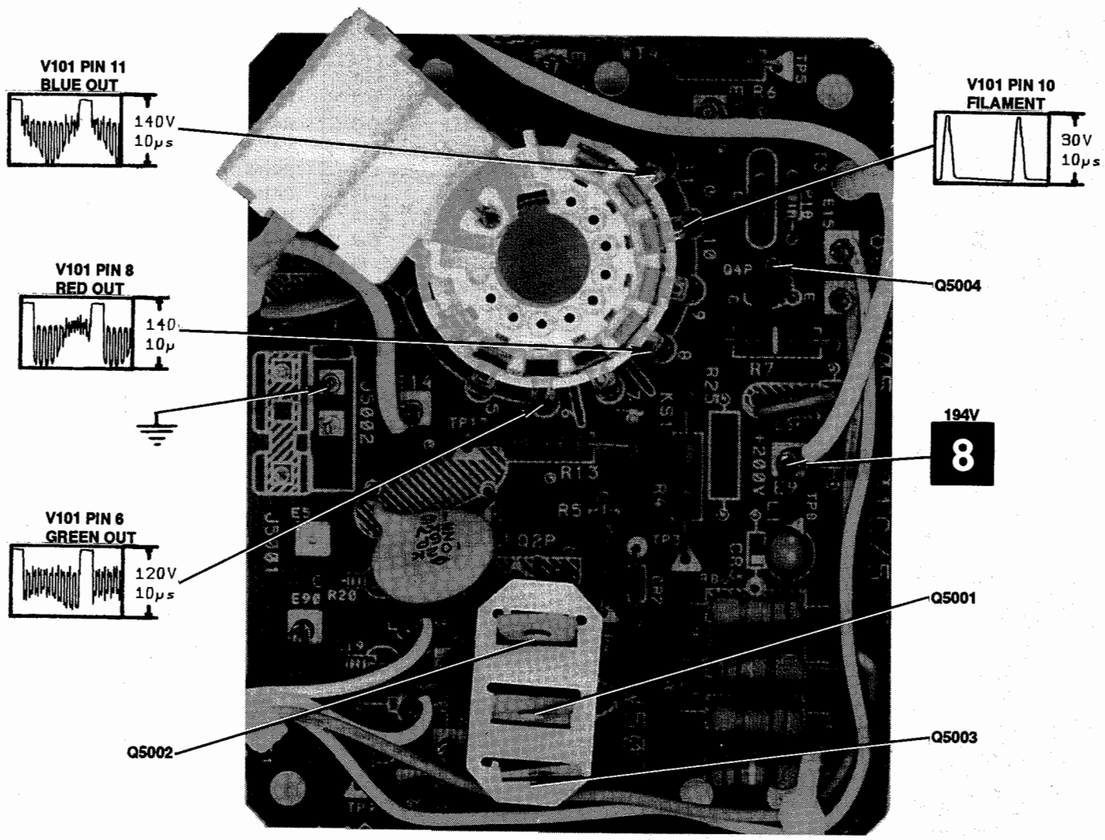
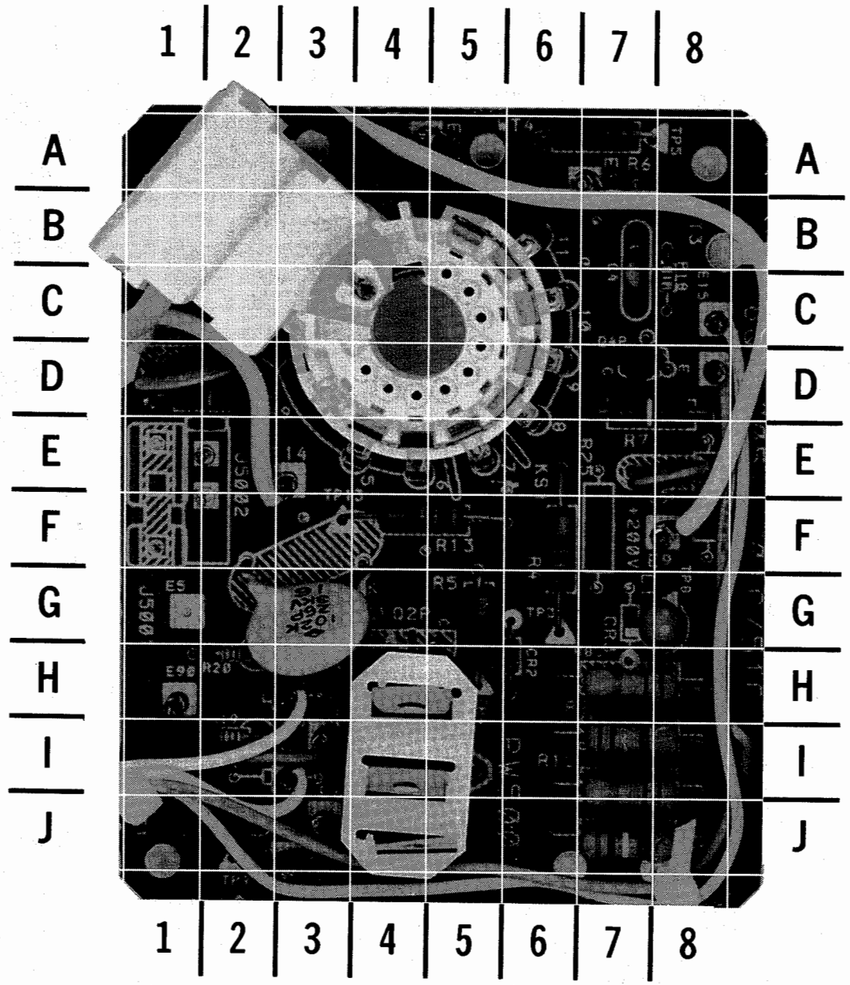


CRT BOARD



A HOWARD W. SAMS QUICK-CHECKS™ PHOTO



A HOWARD W. SAMS GRIDTRACE™ PHOTO

CRT SOCKET BOARD, GRIDTRACE LOCATION GUIDE

C5001	G-3
C5002	D-1
C5004	C-7
C5005	E-8
CR5002	H-6
J5002	E-2
KS5001	C-4
L5001	G-8
Q5001	I-4
Q5002	H-4
Q5003	J-4
Q5004	D-7
R5001	I-7
R5002	I-7
R5003	J-7
R5004	F-6
R5005	G-5
R5006	A-7
R5007	D-7
R5008	H-7
R5009	D-2
R5013	F-4
R5018	C-8
R5019	I-2
R5020	H-2
R5021	J-2

PARTS LIST

Important Parts Information

- The parts listed here are those not usually available from a well-stocked supply cabinet or bin.
- Where items may be replaced with equivalent parts, several alternates are shown from participating vendors.
- On the parts lists, safety items are marked with a # to remind you that only exact replacements are recommended for these items.
- When ordering parts, state the model number, part number, and description.

Obtaining Parts

Many of these parts are available from your local Sams authorized distributor or the manufacturer of the equipment. Call Sams for the name of your nearest distributor:

800-428-7267

Or consult the Sams *Annual Index* for the address of the original equipment manufacturer.

Participating Vendors

Information on test equipment and replacement parts is listed in these pages for the following participating vendors. Consult the Sams *Annual Index* for their current address.

- B&K Precision
- Custom Components Corporation (Chek-A-Color)
- EVG / Russell Industries, Inc.
- NTE Electronics, Inc. (NTE)
- Philips ECG Company (ECG)
- PTS Electronics Corporation (PTS)
- Quam-Nichols Co. (Quam)
- Sencore, Inc.
- Thomson Consumer Electronics, Inc. (SK, TCE)

SEMICONDUCTORS

(Select replacement for best results.)

Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
CR1401 - CR1404	-	164717	NTE519	ECG519	SK3100
CR1501 - CR1504	-	164717	NTE519	ECG519	SK3100
CR1505, 6	-	164717	NTE519	ECG519	SK3100
CR1701, 4	-	164717	NTE519	ECG519	SK3100
CR1903, 4	-	164717	NTE519	ECG519	SK3100
CR2401	-	164874	NTE177	ECG177	SK9091
CR2701, 2, 3	-	164717	NTE519	ECG519	SK3100
CR2707, 8, 9	-	164717	NTE519	ECG519	SK3100
CR3101	-	132616	NTE5071A	ECG5071A	SK6V8
CR3303, 4, 5	-	164874	NTE177	ECG177	SK9091
CR3401	-	150711	-	-	-
CR3402	-	182827	NTE5010A	ECG5010A	SK5A1
CR3403	-	175393	-	-	-
CR3601	-	146320	NTE135A	ECG135A	SK5V1
CR3602	-	200155	-	-	-
CR4001 - CR4004	-	147015	NTE125	ECG125	SK5010A
CR4101	-	164717	NTE519	ECG519	SK3100
CR4102	-	176296	NTE125	ECG125	SK5010A
CR4103	-	164717	NTE519	ECG519	SK3100
CR4104	-	142670	NTE147A	ECG147A	SK33V
CR4112, 14	-	164717	NTE519	ECG519	SK3100
CR4118	-	147015	NTE125	ECG125	SK5010A
CR4119	-	164717	NTE519	ECG519	SK3100
CR4120	-	195880	NTE5013T1	ECG5013T1	SK9969
CR4160	-	176746	NTE5011A	ECG5011A	SK5A6
CR4161	-	132616	NTE5071A	ECG5071A	SK6V8
CR4162, 3	-	164717	NTE519	ECG519	SK3100
CR4164	-	132616	NTE5071A	ECG5071A	SK6V8
CR4165	-	192848	NTE5018A	ECG5018A	SK9A1
CR4166	-	164874	NTE177	ECG177	SK9091
CR4301	-	176296	NTE125	ECG125	SK5010A
CR4305	-	164717	NTE519	ECG519	SK3100
CR4405	-	164717	NTE519	ECG519	SK3100
CR4501	-	147015	NTE125	ECG125	SK5010A
CR4502	-	139706	NTE177	ECG177	SK9091
CR4503	-	164717	NTE519	ECG519	SK3100
CR4504	-	147015	NTE125	ECG125	SK5010A
CR4506	-	139706	NTE177	ECG177	SK9091
CR4601 - CR4604	-	147015	NTE125	ECG125	SK5010A
CR4606	-	147015	NTE125	ECG125	SK5010A
CR4701	-	153672	NTE552	ECG552	SK9000
CR4702	-	176296	NTE125	ECG125	SK5010A
CR4703	-	195703	NTE588	ECG588	SK9938
CR4704	-	153672	NTE552	ECG552	SK9000
CR4705	-	176296	NTE125	ECG125	SK5010A
CR4707	-	147015	NTE125	ECG125	SK5010A
CR4801	-	176746	NTE5011A	ECG5011A	SK5A6
CR4802	-	164589	NTE558	ECG558	SK3998
CR4803	-	164717	NTE519	ECG519	SK3100
CR4804	-	153672	NTE552	ECG552	SK9000

PARTS LIST continued

SEMICONDUCTORS continued

(Select replacement for best results.)

	Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
	CR4805	-	164874	NTE177	ECG177	SK9091
#	CR4901	-	157301	NTE177	ECG177	SK9091
#	CR4902	-	159429	NTE5019T1	ECG5019T1	SK9970
	CR5002	-	139706	NTE177	ECG177	SK9091
	Q1401	-	145410	NTE159	ECG159	SK3466
	Q1402, 3	-	146847	NTE123AP	ECG123AP	SK3854
	Q1404	-	179740	NTE2406	ECG2406	SK10097
	Q1406, 7	-	179740	NTE2406	ECG2406	SK10097
	Q1501 - Q1504	-	179740	NTE2406	ECG2406	SK10097
	Q1505	-	146847	NTE123AP	ECG123AP	SK3854
	Q1702 - Q1705	-	179740	NTE2406	ECG2406	SK10097
	Q2301	-	146848	NTE229*	ECG229*	SK3246A*
	Q2302	-	146847	NTE123AP	ECG123AP	SK3854
	Q2305	-	179741	NTE2407*	ECG2407*	SK10098
	Q2401	-	179740	NTE2406	ECG2406	SK10097
	Q2703	-	143806	NTE159	ECG159	SK3466
	Q2706	-	146847	NTE123AP	ECG123AP	SK3854
	Q2901, 3	-	143806	NTE159	ECG159	SK3466
	Q3101	-	145410	NTE159	ECG159	SK3466
	Q3102	-	179740	NTE2406	ECG2406	SK10097
	Q3301	-	179741	NTE2407*	ECG2407*	SK10098
	Q3302	-	179740	NTE2406	ECG2406	SK10097
	Q3303	-	146847	NTE123AP	ECG123AP	SK3854
	Q3401	-	146847	NTE123AP	ECG123AP	SK3854
	Q4101	-	146847	NTE123AP	ECG123AP	SK3854
	Q4102	-	142839	NTE159	ECG159	SK3466
	Q4103, 4	-	146847	NTE123AP	ECG123AP	SK3854
	Q4106, 7	-	157627	NTE54	ECG54	SK9366
	Q4160	-	146847	NTE123AP	ECG123AP	SK3854
	Q4161	-	157627	NTE54	ECG54	SK9366
	Q4162	-	146850	NTE159	ECG159	SK3466
	Q4301	-	190482	-	-	-
	Q4302	-	145410	NTE159	ECG159	SK3466
	Q4401	-	190483	NTE2331	ECG2331	SK10088
	Q4501	-	146847	NTE123AP	ECG123AP	SK3854
	Q4502	-	142839	NTE159	ECG159	SK3466
	Q4503	-	146847	NTE123AP	ECG123AP	SK3854
	Q4801, 2	-	142839	NTE159	ECG159	SK3466
	Q4803	-	145395	NTE123AP	ECG123AP	SK3854
	Q4804	-	190482	-	-	-
	Q4805	-	145410	NTE159	ECG159	SK3466
	Q4806	-	143804	NTE123AP	ECG123AP	SK3854
	Q5001, 2, 3	-	146826	NTE171	ECG171	SK3201
	Q5004	-	146851	NTE287	ECG287	SK3433
	SCR4101	-	197591	-	-	-
#	U1001	-	193082	NTE1790	ECG1790	SK9850
	U1401	HCF4016BE	154027	NTE4016B	ECG4016B	SK4016B
	U1402	HCF4052BE	161079	NTE4052B	ECG4052B	SK4052B

For SAFETY use only equivalent replacement part.
* Lead configuration may vary from original.

SEMICONDUCTORS continued

(Select replacement for best results.)

Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
U1701	LA3361	196121	NTE1248	ECG1248	SK3497
U1702	LM324N	149018	NTE987	ECG987	SK3643
U1801	UPC1406HA	196122	NTE1792	ECG1792	SK9877
U1900	-	181836	-	-	-
U3101	-	206038	-	-	-
U3401	IR3T24	195885	-	-	-
U4501	LA7831	176853	NTE1797	ECG1797	SK9753

ELECTROLYTIC CAPACITORS

	Item	Rating	Mfr. Part No.
	C1733	.47 50V 20% NP	189983
	C1903	1 50V 20% NP	196641
	C1913	220 35V 10%	190493
	C1914	220 35V 10%	190493
	C3603	68 50V 10%	191144
#	C4007	680 200V 10%	190560
#	C4120	33 180V 20%	179554
	C4505	2.2 50V 10%	192315
	C4507	1500 25V 10%	190495
	C4701	680 50V 10%	190497
	C4705	47 63V 10%	190498
	C4707	100 35V 10%	190501
#	C4904	10 50V 20%	189981

For SAFETY use only equivalent replacement part.

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PARTS LIST continued

CAPACITORS

	Item	Rating	Mfr. Part No.
	C1209	33 NPO 50V 5%	174408
	C1223	33 NPO 50V 5%	174408
	C1502	82 NPO 50V 5%	176828
	C1503	68 NPO 50V 5%	174410
	C1504	68 NPO 50V 5%	174410
	C1726	47 NPO 50V 5%	174409
	C2311	33 NPO 50V 5%	174408
	C2313	7 NPO 50V ±.5pF	174401
	C2318	18 NPO 50V 10%	181455
	C2709	82 NPO 50V 5%	176828
	C2720	68 NPO 50V 5%	174410
	C2722	12 NPO 50V 5%	174403
	C2723	22 NPO 50V 5%	174406
	C2724	220 NPO 50V 5%	178188
	C2803	56 NPO 50V 5%	190542
	C2805	33 NPO 50V 5%	174408
	C2813	10 NPO 50V 1%	174402
	C2816	150 NPO 50V 5%	181091
	C2821	39 NPO 50V 5%	181090
	C2907	220 NPO 50V 5%	178188
	C2908	220 NPO 50V 5%	178188
	C2909	220 NPO 50V 5%	178188
	C3114	33 NPO 50V 5%	174408
	C3115	39 NPO 50V 5%	181090
	C3304	100 NPO 50V 10%	174412
	C3305	100 NPO 50V 10%	174412
	C3318	22 NPO 50V 5%	174406
	C3319	22 NPO 50V 5%	174406
	C3321	47 NPO 50V 5%	174409
	C3323	100 NPO 50V 10%	174412
	C3325	100 NPO 50V 5%	193340
#	C4001	.22 600V 20%	175604
#	C4002	680 1KV 20%	190538
#	C4003	680 1KV 20%	190538
#	C4004	680 1KV 20%	190538
#	C4005	680 1KV 20%	190538
#	C4008	.005 25V 20%	195697
	C4110	10 NPO 50V 1%	174402
	C4111	2 NPO 50V ±.25pF	206032
	C4320	100 NPO 50V 5%	174412
#	C4402	.0145 1.6KV 3.5%	195700
#	C4403	.43 250V 5%	195701
		.56 250V 5% (1)	196049
#	C4405	.0047 250V 10%	190534
#	C4406	470 N1500 5%	143242
#	C4806	.068 400V 5% (1)	196161

For SAFETY use only equivalent replacement part.
(1) Used in Chassis CTC167R.

COILS (RF-IF)

	Item No.	Rating	Mfr. Part No.
	L1204	4.5MHz Detector	190504
	L1206	56uH	196107
	L1501	120uH	206045
	L1502	47uH	206046
	L2301	.68uH	195708
	L2302	1uH	195709
	L2303	10uH	196108
	L2304	2.2uH	190553
	L2306	AFT	190506
	L2308	Video IF Detector	190503
	L2310	-	206035
	L2701	68uH	149167
	L2802	8.2uH	149170
	L3101	10uH	175409
	L3301	56uH	196107
	L3601	100uH	195714
#	L4001	Line Filter	190507
#	L4101	280uH	195715
#	L4102	6.8uH	191141
#	L4402	Horizontal Linearity	192844
		Horizontal Linearity (1)	196064
#	L4701	10uH	175409
	L4702	220uH	175411
	L4703	220uH	175411
	L4801	300uH	196063
	L5001	330uH	196125

For SAFETY use only equivalent replacement part.
(1) Used in Chassis CTC167R.

RESISTORS

	Item No.	Rating	Mfr. Part No.	NTE Replacement
#	R1216	10 5% 1/4W Mtl Flm FP	829010	QW010
#	R1404	100 5% 1/4W Cbn Cmp	190466	QW110
	R1454	33K 2% 1/8W Chp Mtl Flm	176813	EW333
#	R1805	3.3 5% 1W FP Mtl Flm	190554	1W3D3
#	R1903	1 5% 1/4W Cbn Flm FP	829A10	QW1D0
#	R1904	1 5% 1/4W Cbn FlmFP	829A10	QW1D0
#	R1905	10 5% 2W Mtl Flm FP	179284	2W010
#	R2302	100 5% 1/4W Cbn Flm FP	829110	QW110
	R2318	330 2% 1/8W Chp Mtl Flm	181488	EW133
	R2701	31.6K 1% 1/4W Mtl Flm	196114	-
#	R2781	27K 5% 1/2W Cbn Cmp	206037	HW327
	R2908	120 2% 1/8W Chp Mtl Flm	181485	EW112
	R2909	120 2% 1/8W Chp Mtl Flm	181485	EW112
	R2910	120 2% 1/8W Chp Mtl Flm	181485	EW112
#	R2914	10 5% 1/4W Cbn Flm	175753	QW010
	R3304	22K 2% 1/8WChp Mtl Flm	174367	EW322
	R3402	133K 1% 1/4W Cbn Flm	195752	-
#	R3601	130 5% 1W Mtl FlmFP	175783	1W113
#	R3607	820 5% 1/2W Mtl Flm FP	193065	HW182
#	R4001	2.7 10% 15W WW	190487	-
#	R4002	2.7M 5% 1/2W Cbn Flm	183127	HW527
#	R4101	15K 5% 3W Mtl Flm FP	182374	3W315
	R4103	22K 2% 1/8W Chp Mtl Flm	174367	EW322
	R4109	620 2% 1/8W Chp Mtl Flm	181493	EW162
#	R4110	47 10% 1/2W Cbn Cmp	190473	HW047
#	R4113	4700 5% 2W Mtl Flm FP	195722	2W247
	R4115	2200 5% 3W Mtl Flm FP	190559	3W222
#	R4116	41.2K 1% 1/4W Mtl Flm	176500	-
#	R4118	4200 1% 1/4W Mtl Flm	195724	-
		4320 1% 1/4W Mtl Flm (1)	196070	-
#	R4125	3.9 5% 1/4W Cbn Flm FP	829A39	QW3D9
#	R4126	18 5% 2W Mtl Flm FP	174939	2W018
	R4129	22K 2% 1/8W Chp Mtl Flm	174367	EW322
#	R4132	619 1% 1/4W Mtl Flm	195725	-
		634 1% 1/4W Mtl Flm (1)	196069	-
#	R4172	22 5% 2W Mtl Flm FP	179786	2W022
#	R4175	41.2K 1% 1/4W Mtl Flm	176500	-
	R4305	100 5% 1/2W Mtl Flm FP	183619	HW110
		68 5% 1/2W Mtl Flm FP (1)	830068	HW068
#	R4403	220 5% 1W Mtl Flm FP	190555	1W122
#	R4506	3.3 5% 1W Mtl Flm FP	190554	1W3D3
#	R4516	47 5% 1/4W Cbn Flm	175040	QW047
#	R4701	10 5% 1/2W Cbn Flm FP	830010	HW010
#	R4702	82K 5% 1/2W Cbn Flm	830382	HW382
#	R4704	27 5% 1/4W Cbn Flm FP	829027	QW027
#	R4707	1500 5% 1/2W Cbn Flm FP	830215	HW215
#	R4708	3.9 5% 1/4W Cbn Flm FP	829A39	QW3D9

For SAFETY use only equivalent replacement part.
(1) Used in Chassis CTC167R.

RESISTORS continued

	Item No.	Rating	Mfr. Part No.	NTE Replacement
#	R4713	3.3 5% 3W WW	195730	-
#	R4809	470 5% 1W Mtl Flm FP	831147	1W147
#	R4814	47 5% 3W MtlFlm FP	196076	3W047
#	R4901	100 5% 1/4W Cbn Flm FP	829110	QW110
#	R4902	28K 1% 1/4W Mtl Flm	195731	-
		27.4K 1% 1/4W Mtl Flm (1)	151883	-
#	R4903	39.2K 1% 1/4W Mtl Flm	190469	-
	R4904	22K 2% 1/8W Cbn Flm	175317	QW322
#	R4905	10K 5% 1/4W Cbn Flm	175317	QW103
	R5001	15K 5% 2W Mtl Flm FP	179236	2W315
		20K 5% 2W Mtl FlM FP (2)	209855	2W320
	R5002	15K 5% 2W Mtl Flm FP	179236	2W315
		20K 5% 2W Mtl FlM FP (2)	209855	2W320
	R5003	15K 5% 2W Mtl Flm FP	179236	2W315
		20K 5% 2W Mtl FlM FP (2)	209855	2W320
	R5008	15K 5% 2W Mtl Flm FP	179236	2W315
#	R5015	3.3M 10% 1/2W Cbn Comp	181986	HW533
#	RT4201	5.3 Cold PTC	190002	-

For SAFETY use only equivalent replacement part.
(1) Used in Chassis CTC167R.
(2) Used in some versions.

CONTROLS

(All wattages 1/2 watt or less, unless otherwise listed.)

	Item No.	Function	Resistance	Mfr. Part No.
	R1726	Audio Input Level	10K	181107
	R1741	Stereo Oscillator	7500	196112
	R1758	Expander Gain	100K	181108
	R2314	RF AGC	100K	191389
	R2719	Contrast Preset	300	190525
	R2903	Red Bias	4500	190533
	R2907	Blue Drive	150	193062
	R2913	Green Drive	150	193062
	R2915	Green Bias	4500	190533
	R2923	Blue Bias	4500	190533
	R3316	Tint Preset	10K	181107
#	R4117	B+ Regulator (1)	20K	-
	R4321	Horizontal Centering	20K	195727
	R4513	Vert Height	350	190532
#	R4705A/B	Focus/Screen	-	190489
		Focus/Screen (2)	-	196072
	R4803	E/W Pin Amplitude (2)	1000	181106
	R4805	Width (2)	1500	196075

For SAFETY use only equivalent replacement part.
(1) Part of CR4120 B+ Regulator Kit.
(2) Used in Chassis CTC167R.

COILS & TRANSFORMERS

	Item No.	Function	Mfr. Part No.	On-Unit No.	Russell Part No.
#	DY1	Yoke 110° Horiz 1.28mH	(1)	2G27001-501	-
		Vert 18.0mH		-	-
		Yoke	(2)	-	-
		Yoke	(3)	-	-
		Yoke	(4)	-	-
#	T4101	SCR Driver	196119	2103 02B	-
#	T4301	Horiz Drive	195734	2100 02A	-
#	T4401	Horiz Output	195735 (5)	1384 091	FBT-295
		Horiz Output	196082 (6)	-	-
#	T4601	Standby Power	190508	0100 01A	-
#	T4801	Chopper	196084 (6)	-	-

For SAFETY use only equivalent replacement part.
(1) Part of CRT A66ADT20X01, Used in Models F26050WNFEI, F26051EMFE1, F26051EMNE1.
(2) Part of CRT A63ADT10X05, Used in ModelsG25180WKMF1, G25181WKMF1, G25189TKKF1, G25189TKMF1
(3) Part of CRT A66ADT14X01, Used in Models G26290TNMF1, G26290TNPF1, G26291WKKF1, G26291WKMF1, G26291WKNF2, G26295PHMF1, G26299TKKF1, G26299TKMF1.
(4) Part of CRT A68AEG10X01, Used in Models G27201WKLM1, 27201
(5) Used in Chassis CTC167C, CN, CS.
(6) Used in Chassis CTC167R.

SPEAKERS

Item No.	Description	Mfr. Part No.	Quam Part No.
SP1, SP2	2 1/4" x 5" 32 Ohm 1W	193192 (1)	-
	2 1/4" x 3 1/2" 32 Ohm 1.5W	183163 (2)	-
	3" x 8" 32 Ohm	183165 (3)	-

(1) Used in Models F26050WNFE1, F26051EMFE1, F26051EMNE1, G25180WKMF1, G25181WKMF1, G25189TKKF1, G25189TKMF1.
(2) Used in Models F25163WNFC1, F25163WNNC1.
(3) Used in Models G26290TNMF1, G26290TNPF1, G26291WKKF1, G26291WKMF1, G26291WKMF2, G26299TKKF1, G26299TKMF1, G27201WKLM1, G27201WKKM2.

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PARTS LIST continued

MISCELLANEOUS

	Item No.	Description	Mfr. Part No.	Notes
#	C4009	Capristor	250102	470pF, 3.1M
	CF1201	Filter	195702	4.5MHz
	CF2301	Filter	160140	4.5MHz
	DL1501	Delay Line	195704	
	DL2701	Delay Line	177795	
	F4001	Fuse	175425	5 Amp 125V AC
	FB4401	Ferrite Bead	161237	
	FB4801	Ferrite Bead	154052	
#	J4001	Connector	190517	
#	J4901	Connector	190476	
#	K4112	Relay	190490	Degaussing
#	KS5001	Socket	189986	CRT
#	L4201	Degaussing Coil	207094	25" sets
		Degaussing Coil	207098	26" sets
		Degaussing Coil	250050	27" sets
#	P1	Cord	187802	AC Line
	SF2301	Filter	176852	SAW
#	SG4001	Spark Gap	(1)	
#	SG4002	Spark Gap	(1)	
#	SG4701	Spark Gap	(1)	
	SW3401	Switch	206888	Audio
	SW3403	Switch	206888	Channel Up
	SW3411	Switch	206888	Video
	SW3413	Switch	206888	Volume -
	SW3421	Switch	206888	Set - Up
	SW3423	Switch	206888	Volume +
	SW3431	Switch	206888	Channel Down
	SW3433	Switch	206888	Power
#	V101	CRT	A66ADT20X01	(2) Includes Deflection Yoke
		CRT	A63ADT10X05	(3) Includes Deflection Yoke
		CRT	A66ADT14X01	(4) Includes Deflection Yoke
		CRT	A68AEG10X01	(5) Includes Deflection Yoke
	Y2801	Crystal	161235	3.58MHz
	Y3101	Crystal	209856	8MHz
	Y4301	Resonator	179267	
	Y7501	Crystal	206057	

\# For SAFETY use only equivalent replacement part.
(1) Part of Main Board.
(2) Used in Models F26050WNFE1, F26051EMFE1, F26051EMNE1.
(3) Used in Models F25163WNFCI, F25163WNNC1, G25180WKMF1, G25181WKMF1, G25189TKKF1, G189TKMF1.
(4) Used in Models G26290TNMF1, G26290TNPF1, G26291WKKF1, G26291WKMF1, G26291WKMF2, G26299TKKF1, G26299TKMF1, G26295PHMF1.
(5) Used in Models G27201WKLM1, G27WKKM2.

MISCELLANEOUS continued

	Item No.	Description	Mfr. Part No.	Notes
#		Board	206060(6)	CRT
#		Board	250109	Front Panel
#		Bracket	202903	LED
		Clip	176642	Fuse
#		Cover	194372	Focus
#		Housing	194373	Focus
#		Panel	206054	Jack (7)
#		Panel	206055	Jack (8)
		Tuner	198626(6)	UHF/VHF
		Tuner	200075(6)	UHF/VHF
		Transmitter	204935	Remote Control CRK59B (9)
		Transmitter	192108	Remote Control CRK53D (10)

\# For SAFETY use only equivalent replacement part.
(6) Contact PTS Electronics Corporation for replacement; order by manufacturer's part number.
(7) Used in Chassis CTC167R, CTC167CN, CTC167CS.
(8) Used in Chassis CTC167C.
(9) Used with all Models except F25163WNFC1, F25163WNNC1.
(10) Used with Models F25163WNFC1, F26163WNNC1.

Created with pride by the employees of Howard W. Sams & Company.

J. Barker, B. Buchanan, T. Clensy, R. Raus, S. Scott, K. Smith, D. Stitt, D. Urick

PARTS LIST continued

CABINET PARTS

MODELS F25163WNFC1, F25163WNNC1

Item	Part No.
# Bracket, Front Panel	196544
# Buttons	204485
# Cabinet Back	BK1142
# Cabinet Wrap	201503
# Clip, Degaussing Coil	189868
# Cover, Test Access	196034
# Lens/LED/LDR	207140
# Mask, Cabinet Front	MK1255
# Screw, CRT Mount	180834
# Window, IR	200220

MODEL F26050WNFE1

Item	Part No.
# Bracket, Front Panel	205262
# Cabinet Back	BK1291
# Cabinet Wrap	207524
# Clip, Degaussing Coil	189868
# Cover, Test Access	196034
# Lens/LED/LDR	207140
# Mask, Cabinet Front	MK1290
# Screw, CRT Mount	180834
# Window, IR	200220

MODELS F26051EMFE1, F26051EMNE1

Item	Part No.
# Bracket, Front Panel	205262
# Cabinet Back	BK1291
# Cabinet Wrap	207525
# Clip, Degaussing Coil	189868
# Cover, Test Access	196034
# Lens/LED/LDR	207140
# Mask, Cabinet Front	MK1290
# Screw, CRT Mount	180834
# Window, IR	200220

For SAFETY use only equivalent replacement part.

CABINET PARTS continued

MODEL G25180WKMF1

Item	Part No.
# Bracket, Chassis Mount	194713
# Bracket, Front Panel	210612
# Cabinet Back	BK1378
# Clip, Degaussing Coil	189868
# Frame, CRT Mount	210611
# Lens/LED/LDR	250045
# Mask, Cabinet Front	MK1377
# Screw, CRT Mounting	180834
# Window, IR	208615

MODEL G25181WKMF1

Item	Part No.
# Bracket, Chassis Mount	194713
# Bracket, Front Panel	196544
# Cabinet Back	BK1165
# Clip, Degaussing Coil	189868
# Frame, CRT Mount	207095
# Lens/LED/LDR	250045
# Mask, Cabinet Front	MK1194
# Screw, CRT Mounting	180834
# Window, IR	200061

MODELS G25189TKKF1, G25189TKMF1

Item	Part No.
# Bracket, Chassis Mount	194713
# Bracket, Front Panel	196544
# Cabinet Back	BK1165
# Clip, Degaussing Coil	189868
# Frame, CRT Mount	207095
# Lens/LED/LDR	250045
# Mask, Cabinet Front	MK1164
# Screw, CRT Mounting	180834
# Window, IR	200061

For SAFETY use only equivalent replacement part.

CABINET PARTS continued

MODELS G26290NMF1, G26290TNPF1

Item	Part No.
# Bracket, Chassis Mount	194713
# Cabinet Back	BK1166
# Clip, Degaussing Coil	189868
# Frame, CRT Mount	193650
# Lens/LED/LDR	250045
# Mask, Cabinet Front	MK1250
# Screw, CRT Mounting	180834
# Window, IR	197550

MODELS G26291WKKF1, G26291WKNF1, G26291WKMF2

Item	Part No.
# Bracket, Chassis Mount	194713
# Bracket, Front Panel	195888
# Cabinet Back	BK1284
# Clip, Degaussing Coil	189868
# Frame, CRT Mount	191586
# Lens/LED/LDR	250045
# Mask, Cabinet Front	MK1283
# Screw, CRT Mounting	180834

MODEL G26295PHMF1

Item	Part No.
# Bracket, Chassis Mount	194713
# Bracket, Front Panel	195888
# Cabinet Back	BK1039
# Clip, Degaussing Coil	189868
# Frame, CRT Mount	191586
# Lens/LED/LDR	250045
# Mask, Cabinet Front	MK1283
# Screw, CRT Mounting	180834

MODELS G26299TKKF1, G26299TKMF1

Item	Part No.
# Bracket, Chassis Mount	194713
# Bracket, Front Panel	195888
# Cabinet Back	BK1039
# Clip, Degaussing Coil	189868
# Frame, CRT Mount	191586
# Lens/LED/LDR	250045
# Mask, Cabinet Front	MK1283
# Screw, CRT Mounting	180834

For SAFETY use only equivalent replacement part.

CABINET PARTS continued

MODEL G27201WKLM1

Item	Part No.
# Bracket, Chassis Mount	194713
# Cabinet Back, Lower	BK1286
# Cabinet Back, Upper	BK1288
# Clip, Degaussing Coil	189868
# Frame, CRT Mount	197513
# Lens/LED/LDR	250045
# Mask, Cabinet Front	MK1287
# Screw, CRT Mount	180834

MODEL G27201WKKM2

Item	Part No.
# Bracket, Chassis Mount	194713
# Cabinet Back, Lower	BK1370
# Cabinet Back, Upper	BK1288
# Clip, Degaussing Coil	189868
# Frame, CRT Mount	197513
# Lens/LED/LDR	250045
# Mask, Cabinet Front	MK1287
# Screw, CRT Mount	180834

REMOTE CONTROL TRANSMITTERS

CRK53D

Item	Part No.
Buttons	192558
Case, Bottom	191568
Case, Top	191567
Contact, Negative	173215
Contact, Positive	173216
Contact, Dual	173214
Cover, Battery	191570
Window, IR	191569

CRK59B

Buttons	250100
Case, Bottom	250053
Case, Top	250101
Contact, Dual	173214
Contact, Dual Battery	250055
Contact, Negative	250063
Contact, Positive	250064
Cover, Battery	250056

For SAFETY use only equivalent replacement part.

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